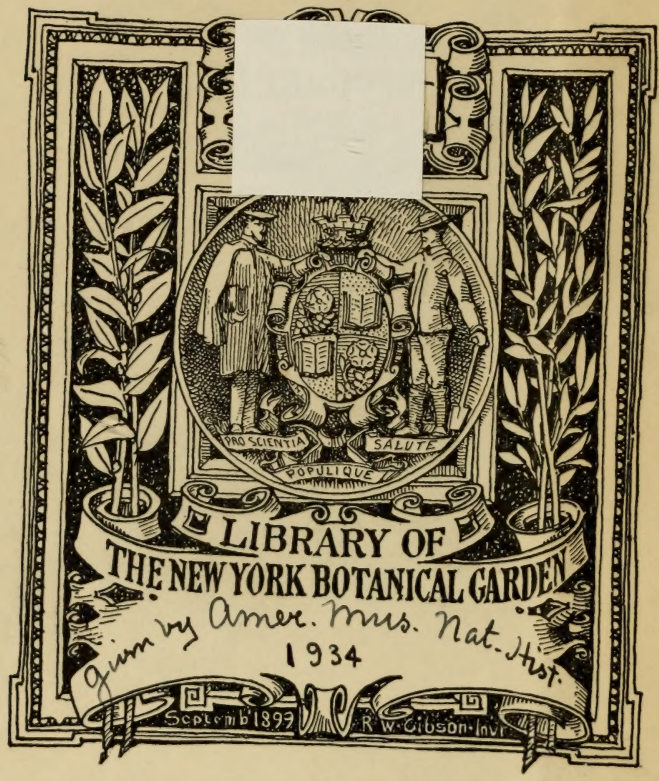
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REPORTS

ON THE

HERBACEOUS PLANTS

AND ON THE

QUADRUPEDS

OF

MASSACHUSETTS.

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OF THE STATE.

CAMBRIDGE:
FOLSOM, WELLS, AND THURSTON,
PRINTERS TO THE UNIVERSITY.

1840.

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REPORT

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HERBACEOUS FLOWERING PLANTS

OF

MASSACHUSETTS,

ARRANGED ACCORDING TO THE NATURAL ORDERS OF LINDLEY,

AND

ILLUSTRATED CHIEFLY BY POPULAR DESCRIPTIONS

OF THEIR

CHARACTER, PROPERTIES, AND USES.

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REPORT

ON THE

HERBACEOUS PLANTS

OF

MASSACHUSETTS.

By the Rev. CHESTER DEWEY,

PROFESSOR OF CHEMISTRY, BOTANY, AND NATURAL PHILOSOPHY

IN THE BERKSHIRE MEDICAL INSTITUTION AT PITTSFIELD.

To His Excellency Marcus Morton,

Governor of the Commonwealth of Massachusetts:

Sir,

Soon after our appointment on the Botanical Survey, my associate, George B. Emerson, Esq., of Boston, consented to take the charge of the *trees* and *shrubs*, and to leave the *herbaceous plants* to my particular attention. In conformity to this arrangement, I early entered upon the work, and have prosecuted it long; and, in fulfilling the duties of the commission received from the hand of your predecessor in office, I herewith transmit my Report on the Herbaceous part of the Flowering Plants.

Except the necessary systematic arrangement, I have laid aside, to a great extent, the technical language of Botany, as being less consistent with the popular object of the Survey. Scientific descriptions have already been published for professed botanists; *these* were supposed to be designed for the mass of intelligent citizens.

The cultivated plants form no small part of agricultural wealth, and are the chief source of it. They seem to merit special attention. The cultivation of even *ornamental* plants is intimately connected with intellectual and moral habits, and a pure and refined taste. It cannot be believed by the benevolent mind, that the Author of nature has spread over the earth the most delicate and rich beauties of plants and flowers, without designing to attract the attention, and gratify the feelings, of men, or that He intended their beauty and fragrance should be wasted "on the desert air."

Those plants, which have not yet been applied to any valuable purpose, are often minutely described in this Report, to lead to the consideration of the *proportion* of this part of vegetables, and the great ends designed in this amount of vegetable life. The Introduction to the Report is, in part, occupied with the discussion of this interesting subject.

Your Excellency need not be reminded, that, while the Report required great labor, it also made necessary a previous attention, for years, to the examination of our plants.

It was my intention to make some report on the *cellular* plants, — the cryptogamous vegetables, — but there has not been time to accomplish it.

It is not to be expected that the Report is entirely perfect, but care and effort have been employed to make it as complete as possible.

With high respect and consideration,

I am your Excellency's

Very obedient servant,

C. DEWEY.

February 24th, 1840.

INTRODUCTORY REMARKS.

THE object of Botany is the arrangement and description of Plants. Systematic Botany must depend upon such principles, that it may have a universal application. That the language may be useful, and attain its direct object, it must be descriptive of the particular and minute, as well as the great, facts in the world of vegetables. An artificial and a natural method have been adopted for this purpose ; and both were begun by Linnæus, the Father of Botany. The former was carried to great extent and perfection by him ; the latter has been greatly improved, and, under great modifications, carried to much perfection by later botanists. In its details, much yet remains to be ascertained and settled.

In the artificial system of Linnæus, the Classes, Orders, and Genera were determined by the organs employed in the production of the seed, or rather, by the several parts of the flower and fruit. As these organs were *visible* or *invisible*, he divided plants into the two great divisions of *Phenogamous* and *Cryptogamous*, that is, having *visible* and *invisible* organs of reproduction. As this system, with all its simplicity and beauty, and ease of application, and extensive adoption, associated plants of very different structure, the *natural* method has been adopted by the most distinguished botanists of the present age. In the Natural System, plants are associated according to their resemblance in structure and organization. To the great Linnæan divisions just mentioned, correspond the *Vasculares* and *Cellulares*, or, as they are also called, from another great fact, the *Flowering* and the *Flowerless* plants. Between the structure of these two divisions, there seems to be a pretty marked distinction. To the *cellular* structure of the Cellulares, only a mere allusion can be made.

The *Vasculares*, those possessed of flowers, form two great subdivisions, according to their manner of growth, called *Exogenæ* and *Endogenæ*. In the *Exogenous* plants, the growth is by layers, or a deposition of matter upon the outside, as shown in the concentric layers of trees and shrubs; in the *Endogenous* plants, the growth is by a deposition of matter within the plant. In the former, the *bark*, *wood*, *pith*, &c., are readily distinguished; in the latter, they are not. In the former, too, the new and delicate matter is protected by the bark, from the inside of which it is made; in the latter, the same protection is effected by the place of its deposit in the interior of the plant.

The Vasculares are propagated by *seeds*, and are chiefly characterized by the *leaves*. Some are propagated also by *bulbs* or *roots*, and are found in the Endogenous division. The leaves of the Exogenous plants have *branching* or *netted veins* very generally; but the Endogenous usually have *veined* leaves, or leaves with veins rising from the foot-stalk, and running through the leaf either *curved* or *straight*, and *parallel* and *undivided*. By the *veining* of the leaves, these two important subdivisions are, as a general fact, readily distinguished.

The seeds of the Exogenæ have two cotyledons, or are dicotyledonous; those of the Endogenæ are monocotyledonous.

A "Catalogue of Plants growing without Cultivation" in the Commonwealth, arranged according to the Natural Method of Lindley, as published and applied to the plants of this country by Professor Torrey of New York, was given by Professor Hitchcock in the Geology of the State already published by the Legislature. The Orders of this "Catalogue," have been followed in this Report on the Herbaceous plants, with the addition of such Orders from Lindley, as the introduction of the cultivated plants has made necessary. The changes made in some of these Orders, both in Europe and our own country, are not sufficiently settled to require a departure from the Orders of Lindley. It was thought best, also, to follow these Orders, that the whole Survey might be more symmetrical, and reference to the various parts more easy and satisfactory. For the same reason, the names of the genera and species in Professor Hitchcock's Catalogue have been retained, even in the few cases where it might

be supposed a later or earlier name was to be preferred. Some additional species, since discovered or ascertained, have been put in their proper places. For ease of reference to Lindley's work, his *numbers* of the several *Orders* have been given, although many of his Orders are omitted, because we have no plants belonging to them.

It has been supposed, too, that while the objects to be attained by the Legislature in the Survey, required a systematic arrangement in the outline, it was important that the descriptions should be popular in their character, easy to be apprehended, and not technical in their language, and that notice should be taken of facts of importance or of interest in any respect. The *botanical* name, with the usual abbreviation of the author's name, has been given, but without the synonymes ; because one name would direct the botanist to the plant intended, and more names, and even all the synonymes, would offer no advantage to the common reader.

The *cultivated* plants have been introduced, whether raised in the garden or on the farm, and many of the parlour ; whether designed for ornament, food, clothing, or art, or manufacture. All these were supposed to have been intended in the Survey of Vegetable Life in the Commonwealth.

In drawing up this Report, besides the actual examination of a great proportion of the plants, and the advantage of a long attention to them, reference has been freely made to all the accessible authors on our plants, to several of whom abundant and direct acknowledgment is made. The descriptions of the Orders, however, are chiefly from Lindley's work already referred to, while the properties and geography have been taken from him and any others who have treated of them. It is too well known for remark, that the works of Michaux, Muhlenburg, Rush, Bigelow, Eaton, Torrey, Nuttall, Beck, &c., contain full *scientific* accounts of nearly all the plants mentioned in this Survey. There is room, doubtless, for the display of their *economical* properties, and their application to art and manufacture, to the support, and ornament, and enjoyment of life, to a much greater extent. The Agricultural Survey will probably detail many particulars respecting the

cultivated vegetables, in the proper statistics of the farm, which might otherwise find a place in the Botanical Report.

OF THE USELESS PLANTS.

A large number of the plants which are considered *useless*, because they have yet no known application, are particularly described in this Report. They occupy space ; they aid in covering the earth with vegetable life. They are, indeed, *weeds*, and often considered as mere nuisances. What is the advantage derived from them ? What object is designed by them ? Can any one be in truth *useless ?* Certainly not, is the reply to the last question. The others may receive the following answers :

1. The vegetable kingdom is the great means of purifying the atmosphere, so that it may sustain the animal kingdom. Respiration of animals, and various operations in nature, produce such a change as tends to make the atmosphere unfit for its great office. Its oxygen has become combined with carbon, or the essence of charcoal, and cannot be separated by the lungs so as to support life. This separation is effected by vegetables. They take up the carbon and restore the oxygen to the atmosphere. They do this as they grow in the air, and also as they grow in and under water. Provision is made for the absorption of carbonic acid by water, and thus food is supplied to plants, and life to animals. This is one of the most beautiful provisions in the economy of Divine Providence. It has sometimes been doubted whether vegetables were able completely to accomplish the object. None have maintained, however, that they did not operate largely and chiefly to this end. Even the general opinion seems to be strongly in favor of their perfectly effecting this purpose. To accomplish this object, vegetables must be spread widely over the earth. It might not be sufficient to depend upon the results of cultivation. Besides, the vegetables must be formed for growth through all the warm season of the year, and in all the variety of soil, situation, climate, condition. Plants that are directly useful,

would not be more likely to effect this end in all this variety ; it is doubtful, indeed, whether the useful plants would be so well adapted to this state of things, as they generally require a more favorable combination of circumstances.

To secure this end, too, it is important that a host of plants should have no natural attractions for animals, that they may grow without molestation, and exert their influence upon the atmosphere without interruption.

This end is secured by the foliage of forests, which is chiefly removed from all access of destructive agencies.

It is a general fact, that animals multiply nearly in proportion to the supply of food. If all vegetables were food for animals, the entire action of a great multitude could not be employed, as it now is, in purifying the atmosphere.

In this grand respect, all plants are performing a work of the highest utility. Unseen and silent, they renovate the very pabulum of life.

2. Another end of the vegetable kingdom is food for the animal. All animal life is ultimately supported from the vegetable world. But animal life abounds ; tens of thousands of smaller animals, and especially of the insect tribe, must be dependent, as well as the larger animals and man, upon vegetables. By their foliage and seeds, the plants now considered as useless by many, may give far more support in the article of food, than is commonly imagined. We know that many small birds derive much food from seeds, as also a host of insects ; and yet we may be in relative ignorance on this subject. Even the animals of the seas must have no inconsiderable dependence upon vegetable substances for their support. A great amount of decomposed vegetables must be annually poured into the great reservoir by all the rivers.

3. Plants enrich the soil, and fit it for the production of vegetables in greater quantity. This is true of vegetables generally, when they live and die and decay on their place of growth. Cultivation often exhausts land, because no adequate return is made for the vegetable matter removed from the fields. The vegetables, often considered useless, will, by their decay, perform another important service, in enriching the earth, and improving the soil. It has long been remarked, that this effect follows, because

the atmosphere contains the elements of vegetable matter, and plants derive their support from the air as well as from the earth. Experiment has proved that a plant will grow and flourish without any food except that obtained from water and the atmosphere. The reason for giving up exhausted fields to the growth of any vegetables for a few years, is philosophical and conclusive. Without the great fact of vegetables enriching the earth, the reason could not exist.

4. Many important properties and applications of these plants may yet be discovered and made, so that they may be seen to be more directly useful. Great discoveries have been made in this respect within the last fifty years. It cannot be doubted that the progress of discovery is only just commenced. The beautiful colors for painting, called *lakes*, are many of them obtained from vegetables, and many more may yet be procured. Combinations, too, of vegetable matter may develope important powers. Without this, indeed, important uses have already been seen.

5. The beauty and variety of vegetable life are in themselves a useful end. In this way are displayed the wisdom, power, and contrivance of the Creator; the illimitable means at his control; the effecting of the same ends by objects so diverse; the adaptation of means to ends; the constant supervision of his agency; the ceaseless variety amidst surprising uniformity.

These are reasons amply adequate to produce an interest in respect to all parts of vegetables. The purification of the atmosphere alone, and preserving in it the due proportion of oxygen in a state to support life, invests the world of vegetables with new attractions.

THE

HERBACEOUS FLOWERING PLANTS

OF

MASSACHUSETTS,

ARRANGED ACCORDING TO THE NATURAL ORDERS OF LINDLEY.

AND

ILLUSTRATED CHIEFLY BY POPULAR DESCRIPTIONS

OF THEIR

CHARACTER, PROPERTIES, AND USES.

PLANTS OF MASSACHUSETTS.

CLASS I. VASCULARES. *Flowering Plants.*

Sub-class I. *EXOGENÆ. Dicotyledones.*

TRIBE I. ANGIOSPERMÆ,

(Or having seeds enclosed in a pericarp or covering.)

1. *Polypetalous, Apetalous, and Achlamydeous Plants.*

ORDER 1. ARALIACEÆ. The Aralia Tribe.

Flowers in the form of an umbel; leaves compound; fruit a berry; permanent calyx standing on the germ or ovary; stamens 5 or 6, 10 or 12, rising within the border of the calyx or flower-cup.

This is a small order, embracing, in Massachusetts, only two genera and five species, though the plants of the order are found widely scattered over North America, and in China, Japan, New Zealand, &c. Some of them are shrubby, while ours are herbaceous. The plants possess no properties of much interest.

1. Aralia. L. 5. 5.

The origin of the name is unknown, but a plant of this name was first sent to Europe from Quebec in 1764. *Loudon.*

Calyx entire, or 5-toothed; corol 5-petalled, small; stamens 5 or more, 5 spreading styles; berry 5 or 10-seeded, crowned with the styles; small involucres often on the umbels.

1. *A. racemosa.* L. Spikenard. Branched, herbaceous stem; petioles 3-parted, with ternate or quinate divisions, and

the leafets acuminate, sharp-serrate, ovate or cordate ; umbels many, on large axillary panicles.

This well-known plant is a native of our woods, and often cultivated in our gardens ; flowers white and small, in umbels, on a divided, somewhat panicled stem, with large leaves ; its height is often four or five feet. The plant is slightly odorous ; the root is highly aromatic, and formerly was used in a bruised state upon wounds, and is still employed for some medicinal purposes. Flowers in July and August.

2. *A. nudicaulis.* L. Wild Sarsaparilla. Stalk, a foot or more high, bears a leaf which becomes twice ternate, or simply with 5 leafets, and a flower-stalk rising near the division, and shorter than the leafets, which are sessile, smooth, serrate, oblong-oval, and acute ; root creeping, thick, aromatic ; used by common people often in the composition of a medicinal beer. Flowers are greenish, 3-umbelled, small. Widely spread over the woods from Arctic America to Carolina, and westward to the Rocky Mountains.

3. *A. hispida.* Mx. Wild Elder. Stem is somewhat woody, or plant partly shrubby, bristly and hispid leaves doubly pinnate, with ovate and serrate smooth leafets ; bears many umbels of flowers, greenish white, and the peduncles axillary and terminal. Grows in dry or rocky woods, often three feet high, and usually dying about half way down ; is found from Virginia to Canada. It more commonly inhabits a light soil in Berkshire County, upon land partially cleared, which has been suffered to be overrun with briers and the like ; common, but not abundant.

Panax. L. 5. 2.

Calyx slightly 5-toothed, superior ; corolla 5-petalled ; stamens 5, on the margin of the flower ; styles 2 or 3, and a berry 2 or 3-seeded ; polygamous, and the calyx of the staminate flower entire. The meaning of the generic name is *universal remedy*, from the supposed virtues of the first species. The Chinese have written volumes upon the excellences of this plant ; and yet

no wonderful or very superior properties have been discovered in the plant in Europe or America. *Loudon.*

P. quinquefolium. L. Ginseng. Stem divides a foot or less from the ground into three leaf-stalks, usually bearing 5 leafets of oval form, serrate, acuminate, smooth ; the flower-stalks shorter than the leaf-stalks. Grows on the hills of Berkshire County, but not in abundance. Its root is fleshy, long, and tapering, and greatly esteemed by the Chinese for its soothing influence. For its medicinal properties, see Bigelow's "Medical Botany." This plant is scattered over a wide range in our country. Flowers in June.

P. trifolium. L. Dwarf Groundnut. Stem 3–8 inches high, dividing into 3 parts which are ternate or quinate, and have lance-oblong and serrate leafets, nearly sessile ; an umbel of small white flowers arises at the division of the leaves, on a short foot-stalk ; styles commonly 3 ; following the stem 6 or 8 inches into the earth, you find a round, tuberous root of the size of a small bullet. Spread over the open woods from Canada to Georgia. Difficult to find its Linnæan place, because of its variation in the number of stamens and pistils ; polygamous also ; berry 3-seeded. Flowers in May.

ORDER 2. UMBELLIFERÆ. The Umbelliferous Tribe.

Calyx superior, 5-toothed, or entire ; petals 5, inserted on the germ, with 5 stamens alternating with the petals ; styles 2, on 2 united seeds, or 2 seeds adhering by their sides ; flowers form an umbel, and commonly a compound umbel. Stems hollow or fistular, furrowed, and usually with divided leaves. Differ from the Araliaceæ in the fruit.

The plants of this order form many genera, and are spread widely over the world ; grow in all situations, plains, woods, marshes, and are far more numerous in the northern hemisphere. They are often very poisonous, and always to be suspected until proved ; some are healthful and nutritious, as Carrot,

Parsnip, Celery ; the seeds are said never to be poisonous, and often are a pleasant aromatic, as Coriander, Dill. Various gum-resins exude from the wounded stem or branches, possessing very different properties, as Assafœtida from a species of Ferula, and gum Galbanum, as is supposed, from Bubon *galbanum*. Various medicinal properties are exhibited by them, and many become valuable articles. About twenty species are credited to this State.

Conium. L. 5. 2.

C. maculatum. L. Poison Hemlock. This plant delights in the sides of roads and fences, and abounds in many places where the soil is light and dry. In the time of flowering especially, it fills the air with nauseating effluvia ; grows from three to five feet high, branching, light green, spotted and handsome, and sends up many terminal umbels of small white flowers. It has no resemblance to our tree called *Hemlock*. It is employed to obtain, by maceration and careful evaporation, the extract usually called *Cicuta*, so valuable in medicine (see Bigelow's " Medical Botany "). It is supposed to have yielded the poison which Socrates drank. It is a native of Europe, and usually believed to have been introduced and naturalized here. Flowers in July.

Conium is derived from the Greek for *dust*, probably from the dusty appearance of the pollen.

Cicuta. L. 5. 2. American Hemlock.

The name *Cicuta* is of unknown origin ; used by Virgil. *Loudon*.

Two species, growing on low grounds, and poisonous ; natives of the United States and Canada.

1. *C. maculata*. L. Water Parsnip. Musquash Root. Stem 4 – 5 feet high, smooth, branching, spotted, with triply pinnate or much divided leaves ; whole plant rather glaucous green ; in wet meadows and pastures, not very abundant. When the leaves rise from the ground, the plant has some resemblance in form and odor to Sweet Cicely, and, though the root is far less

sweet and pleasant, is mistaken for it, and the root, exceedingly poisonous, is eaten to the destruction of life. Children should never be permitted to expose themselves to this fatal mistake; and yet scarcely a year passes, in which children are not destroyed by it. In Bigelow's "Medical Botany," is a full account of its character and operation on the human system, and of its fatal effects. Flowers in July and August.

2. *C. bulbifera.* L. Water Hemlock. Stem 2 – 3 feet high, branching, sleek, more slender than the other; grows in ditches and about ponds or marshy places, bearing scaly bulbs in the axils of the leaves; flowers small and white, on small terminal umbels, with partial involucre leafets. Poisonous. Flowers in August.

CRANTZIA. Nutt. 5. 2.

C. lineata. Nutt. Taken from the following genus; found near Boston. *Nuttall* and *B. D. Greene, Esq.*

HYDROCOTYLE. L. 5. 2. Marsh Pennywort.

The three species found in this State, *Americana*, *umbellata*, *vulgaris*, are of too little importance to require description; the plants are small, unattractive, and grow in moist or wet woods and hedges.

From the Greek for *water-vessel*, as the depression in the leaf holds a drop of water.

DAUCUS. L. 5. 2.

D. carota. L. The common Carrot. *Pastinaca sativa.* L. 5. 2. Parsnip. These are two well-known plants of the garden, and seem, in some cases, to be naturalized. The roots are nutritious and healthful, though the parsnip is said to be rather poisonous as it grows in a wild state; natives of Europe.

The use of the carrot as a food for cows, and proper nutriment for obtaining rich milk, is fully ascertained by agriculturists; a native of England and other parts of Europe.

Ligusticum. L. 5. 2.

L. Scoticum. L. Lovage of the gardens, is naturalized near Boston and New Bedford. So little is the use of this plant, that it is rarely cultivated, at least in the western part of the State. It was found on the borders of salt marshes by Dr. Bigelow.

One species is from *Liguria*, whence the name of the genus.

L. actæifolium. Mx. Actæa-leaved Lovage, with umbels somewhat whirled, the lateral ones barren ; a plant upwards of 3 feet high, having its side leaves trapeziform ; has been found in Topsfield and Scituate by Mr. Oakes and Mr. J. L. Russell.

Angelica. L. 5. 2.

A. triquinata. Mx. Angelica. Stem, 4 – 6 feet high, large, hollow, smooth ; leaves twice divided into 3 parts ; flowers in large umbels, spreading, greenish ; finely aromatic ; grows in meadows, and flowers in June. *Big.*

The plant usually called by this specific name is much smaller, white, villous below the umbel, with white flowers. *Beck.* It is found in the adjoining parts of the State of New York.

Heracleum. L. 5. 2.

H. lanatum. Mx. Cow Parsnip. Named after Hercules. *Loudon.*

This is another large umbellate plant, often 6 feet high ; leaves ternate, large and spreading, woolly beneath, deeply cut, and serrate ; flowers white, in very large spreading umbels, and strong scented. Grows in meadows, and flowers in June ; not very abundant.

According to Sprengel, this species is the true *H. panices*, L., a native of the Apennines and Siberia. *Beck.*

Æthusa. L. 5. 2.

Æ. cynapium. L. Fool's Parsley. Stem, 2 feet high, branching, not spotted, striate, with twice-pinnate leaves ; involucres at the partial umbels, of 3 long, linear, and pendulous leafets. This plant greatly resembles Conium, and is often mis-

taken for it ; grows about the streets of Boston ; probably introduced ; flowers in July and August. *Big.*

A peculiar vegetable alkali has been found in this plant by Professor Ficinus of Dresden, "which he calls *Cynopia.*" *Lind.* This plant is a deadly poison.

It is named from the Greek, *to burn*, on account of its acrid power. *Loudon.*

Discopleura. DC. 5. 2.

D. capillacea. DC. Bishop Weed. Stem 1–2 feet high, smooth, bent a little at the branches, with much-divided leaves ; grows in wet places or bogs, near New Bedford. Allied to the following.

Sium. L. 5. 2. Water Parsnip.

Two species, *latifolium*, L., and *lineare*, Mx., which are only varieties, as they have been found, by T. A. Greene, and G. B. Emerson, growing from the same root, are found in the low grounds, often with *Cicuta bulbifera*, having branching stems, and pinnate leaves, and umbels of small white flowers, of a slight and offensive odor ; flowers in July and August. Poisonous.

Sium is from the Celtic for *water*, about which the plant abounds.

Sanicula. L. 5. 2.

S. Marylandica. L. Sanicle. Stem about 2 feet high, with erect branches, and divided leaves so as to resemble the fingers, with flowers in simple umbels, and having a bush-like appearance ; seeds with hooked bristles ; flowers in June, and grows about thickets and hedges ; common.

Sison. L. 5. 2.

S. Canadense. L. Honewort. Stem about 2 feet high, with compound leaves in 3 divisions ; umbels branched, bearing minute white flowers and smooth seeds ; grows with the preceding, and flowers in July.

Sison is from the Celtic for *stream*, as some species live about waters. *Loudon.*

Smyrnium. L. 5. 2.

S. aureum. L. Meadow Parsnip. Cow Parsnip. Alexanders. This plant has suffered repeated change of name. It is about 2 feet high, smooth, branching; umbel compound, bearing orange-yellow flowers; leaf-stalk divides into 3 parts, and then into 3 leafets. Grows on alluvial and upland meadows over the western part of the State, abundant on Connecticut River and in the eastern part of the State. Latterly it has attracted some attention for its medicinal properties. *Dr. Partridge*, Stockbridge.

Smyrnium is from the Greek for *myrrh*, as the juice smells like this substance. *Loudon.*

Uraspermum. Nutt. 5. 2.

U. Claytoni. Nutt. Sweet Cicely. The sweet, spicy flavor of the root, like anise seed, has made this plant an object of search with the young. Stem about 2 feet high, smooth, with ternate leaves; flowers small and white, in June; root spindle-form, somewhat fleshy, often branching; inhabits borders of woods, and by fences of meadows.

U. hirsutum. Big. Hairy Uraspermum. With the preceding often grows this plant, and much resembles it, but is rough and hairy, and of a whitish cast, and its leaves are more deeply cut, and somewhat hairy; the root has none of the pleasant sweetness of the preceding, but has a strong, rank taste. It was rightly formed into a distinct species by Dr. Bigelow. Found in the western part of State, as well as about Boston.

Apium. L. 5. 2.

A. graveolens. L. Celery. The common vegetable of our gardens. Introduced from Europe, and blanched by being nearly covered with earth as it grows, by which process it becomes juicy, sweet, crisp, and fine-flavored. The name *Apium* is said to be from the Celtic, *water*, from the wet places of the species. Even this one is coarse, rough, and poisonous in its wild state.

ORDER 3. RANUNCULACEÆ. Crowfoot Tribe.

Calyx many-leafed, inferior or below the germ, leafets or sepals 3–6; polypetalous, 5–15 petals in rows, also inferior or hypogynous; stamens indefinite, many hypogynous; pistils many, one to each ovarium, forming a many-celled pistil, or several small and distinct carpels or little seed-vessels; fruit various, generally herbaceous; leaves alternate or opposite; various inflorescence.

This is an extensive order of plants, but most numerous in Europe, and next in North America. They belong to a climate damp and cold. *Lind.* A considerable number is found in this Commonwealth.

The properties of this order render the plants generally to be suspected, as they are often caustic, acrid, or poisonous; sometimes tonic, bitter, or antispasmodic. The medicinal characters of the order are very diverse.

Actæa. L. 12. 1.

A. rubra. W. Baneberry. Stem 2 feet high, glabrous, round and glaucous, with leaves several times ternate; flowers white in a short raceme, bearing red and shining berries, whose long pedicels are far smaller than the common peduncle; flowers in May, and grows in damp woods.

A. alba. Big. White Baneberry. Stem and leaves differ little from the preceding, but the raceme is less round, and longer; berries clear white, tipped with red, and their pedicels equal in diameter to the common peduncle; grows in the same places as the other, and flowers at the same time. Astringent.

A. racemosa. L. Cohosh. Black Snakeroot. Stem 3–5 feet high, smooth, with decompound, ternate leaves, and ovate-oblong, dentate leafets; racemes of white flowers, 6–10 inches long, and somewhat paniculate; odor strong and fetid; flowers in July. Strong medicinal properties; cultivated in the gardens of the Shakers.

AQUILEGIA. L. 12. 5. Columbine.

A. Canadensis. L. Red Columbine. Stem a foot or more high, branching, smooth, with decompound leaves; flowers red or yellowish, singular in form, pendant, with the stamens extending a little from the flower, terminating behind in a straight horn, knobbed and sweet; a beautiful plant, flowers in April and May, and should be cultivated for its beauty; inhabits dry woods and fields, and rocky situations. Canada to Virginia.

A. vulgaris. L. Is cultivated in gardens for its fine blue beautiful flower; the horn or spur, terminating in the knob, is crooked. The power of cultivation has caused these flowers sometimes to become double, a hollow horn being enclosed in another. Exotic, from England.

The seeds of this genus are said to be tonic. *DC.* Some insects get access to the sugar of the horn by inserting their tongue through an opening made into the tube.

The genus is named from the *aquiline* or *eagle-shaped* form of the *spur.*

CLEMATIS. L. 12. 12.

C. Virginiana. L. Virgin's Bower. From the Greek for a *tendril. Loudon.*

This beautiful plant climbs and fastens itself by the twining of the leaf-stalks around branches of shrubs; flower-stalks rise from the axils of the leaves, and bear a cluster of white flowers; the fruit has long feathery tails, being the lengthened and enlarged style, and presenting a singular and beautiful appearance in maturity. Flowers in August; spread over much of North America, in woods and low grounds.

ATRAGENE. L. 12. 12.

A. Americana. Sims. "An elegant climbing vine, with large flowers. The stem gives off opposite axillary buds, out of each of which proceed 2 ternate leaves, and a fine purple flower. Petals 4, oblong-ovate, ciliate, an inch or more in length." *Big.* Flowers in June, and grows on the hills and in the valleys

of Berkshire County. This species was taken from the preceding genus, and formed into a genus by itself.

ANEMONE. L. 12. 12. Windflower.

From the Greek for *wind*, from its *bleak* localities. *Loudon.*

Three species; two, *nemorosa*, DC., and *thalictroides*, L., small, delicate, beautiful; flowering in April and May, about hedges and woods.

A. Virginiana. L. This is a taller and coarser plant, in fields and pastures and hedges; its stem dividing about a foot from the ground into 2, and sometimes more, flower-stalks, which bear a single whitish-green flower, and mature their fruit in a cylindrical head an inch or more long; leaves are given off at this division of the stem, ternate, deeply lobed and hairy. Flowers in July; fruit woolly.

It is often said, in the western part of the State, that the Indians made use of this plant to prevent the fatal effects of the poison of the rattlesnake.

A. cylindrica. Gray. Stem 1 – 3 feet high, with subumbellate flower-stalks, each bearing one flower in a yellowish-green many-leafed flower-cup; head of fruit an inch long; leaves in 3 divisions; the lateral segments 2-parted, and the middle one 3-cleft; flowers in June; collected near Boston by Mr. Greene. *T. and Gr.* in "Flora of North America."

COPTIS. Sals. 12. 12.

C. trifolia. Sals. Goldthread. Named by the common people from its small, horizontal, creeping, bright-yellow roots, lying just under the surface; a flower-stalk bearing one white flower, rises from the root to the height of about 3 inches; leaves radical and ternate, about as high as the flowers; grows in swamps or low grounds, on banks, or around the roots of trees, and flowers from May to July. Roots bitter, and the infusion used for "apthous affections of the mouth." See Bigelow's "Medical Botany." The plant yields a yellow dye. *Beck.*

Named from the Greek, *to cut*, on account of the *divided* leaves.

Hepatica. W. 12. 12.

H. triloba. W. Early Anemone. Liverleaf. From the Greek for *liver*, from the color of the leaves.

Often misnamed Liverwort, which is a Marchantia, and very different from this *Liverleaf.* Flowers early in the spring, on the sides of sunny hills, and in sunny openings of woods, sending up a cluster of flower-stalks 3 – 4 inches high, hairy, and bearing each a single white, or blue, or purplish flower ; leaves from the root also, with petioles often longer than the peduncles of the flowers, and rather prostrate, divided each into three segments or lobes, rounded or acutish, and thus constituting the two varieties of obtuse and acute leafed Liverleaf, in their older state, of a fine liver-color. The plant flourishes well under bushes in gardens, in situations exposed to the sun. Flowers in April ; was taken from the genus Anemone.

This plant has been supposed to possess high medicinal virtues, and is sometimes employed in pulmonary complaints.

Thalictrum. L. 12. 12. Meadow Rue.

Three species are found in the meadows and borders of woods, which resemble somewhat the Rue of the gardens at a little distance ; the leaves are beautiful, but the flowers are insignificant, and neither of the plants is of much consequence. *T. dioicum.* L., flowers rather earlier than *T. cornuti*, L. and *T. corynellum*, DC., and is rather larger than the latter. May and June.

Named from the Greek, *to grow green*, from the change in the color of the leaves.

Caltha. L. 12. 12.

C. palustris. L. Cowslip. It is sometimes called Marsh Marygold, and is a well-known plant of wet places and slow streams. Stem a few inches high, with round, large, heart-shaped or kidney-form leaves, and bearing many deep-yellow flowers. The whole plant and flowers form one kind of common and early *greens* for the table in the country. Flowers in April, abundant. Several other species have been discovered in Arctic America.

Named from the Greek, for *goblet*, as the corolla resembles a golden cup. *Loudon.*

Ranunculus. L. 12. 12.

This is an extensive genus; forty-one species are ascribed to North America by Torrey and Gray in their "Flora"; fourteen species are attributed to our Commonwealth by Professor Hitchcock, in his "Geology of the State," p. 602. The flowers have a great resemblance to each other, while the appearance of the plants is considerably different.

From the Latin for *frog*, as so many species grow about frog-ponds and the like places.

R. acris. L. Buttercups. Crowfoot. This is a common plant, and in many places is a great nuisance in grass fields; bears fine yellow flowers, of middle size, on a branching stem, with leaves much-divided, pubescent, or subglabrous. The plant, and the root in particular, contain a strong *acrid* principle, which disappears on drying. In its decoction *seed-corn* is sometimes soaked, to protect it from being pulled up by crows. Flowers from May to September. Root solid and fleshy, not large; stem near 2 feet high. Flowers *double* by cultivation, and are sometimes found double in their native state.

R. bulbosus. L. Buttercups. A smaller plant, growing, like the other, in fields and road-sides; similar bright-yellow flowers, glossy, and of a very rich hue; much-divided leaves, somewhat hairy; root more poisonous than the preceding, even caustic; flowers from May to August. See Bigelow's "Medical Botany."

R. abortivus. L. Small-flowered Crowfoot. Stem a foot high or less, with radical leaves, undivided, and heart or kidney shaped, crenate, or scolloped on the margin, with stem-leaves in 3 or 5 divisions; small, unsightly, yellow flowers; common in wet soils, in open woods or fields; flowers in May.

R. filiformis. Mx. This is a variety of *R. reptans.* L. Small,

filiform stem, creeping, round, rooting at the joints, with linear and compressed leaves ; plant delicate ; flowers small. June.

R. repens. L. Creeping Crowfoot. Grows in wet and shaded places, along streams, with flowers often larger than those of *R. acris ;* is a variable species, being erect or procumbent, often sending out creepers or runners a considerable distance ; leaves generally ternate, deeply cut, often pilose or hairy ; flowers bright yellow, with petals often emarginate, and calyx spreading. May to August.

R. sceleratus. L. Celery-leafed Crowfoot. Stem smooth, glabrous, branching, succulent, a foot high, with lower leaves in 3 segments, and upper ones sessile and cut down, linear and entire ; flowers yellow, numerous in a concave yellowish calyx ; very acrid, and may be used to produce blisters ; grows in wet places, and flowers in June.

R. flammula. L. Small Spearwort. Stem smooth, declining, with lanceolate and entire leaves, and small, single, yellow flowers ; in ditches, rare ; found near Boston ; flowers in June, and supposed to be introduced. *Big.* May be used, like the last, to produce blisters ; but both are liable to create dangerous ulcers. *Lind.*

R. aquatilis. L. Water Crowfoot. Stem chiefly under water, creeping, and sending out filiformly dissected leaves at the joints, with 3 – 6 inches of the end of the stem projecting from the water, bearing fine yellow flowers, and peltate, 3-parted leaves ; in pond-holes ; flowers in June. This corresponds with the plant of this name in Pursh's "Flora," and is a mere variety of the Linnæan species, and is probably the first variety of this plant in the "Flora" of Torrey and Gray, Vol. I. p. 16. It may have been included in the following by Professor Hitchcock.

R. fluviatilis. L. River Crowfoot. Stem about a foot long, small, slender, sending out filiform leafets at the joints, floating

in the water, and bearing its white, smallish flowers on the surface ; flowers in July, running waters. This is a beautiful species, scarcely to be mistaken. It seems to be distinct from the preceding, with which it is ranked by Torrey and Gray, and from the following, which it no more resembles. This is the plant described by Dr. Bigelow in "Flor. Bost.," p. 227.

R. multifidus. Pursh. Water Buttercups. In general appearance, this plant greatly resembles *R. aquatilis* above, but the part projecting from the water, while it bears large, yellow, bright flowers, has no leaves, or the mere rudiment of a leaf at the joint. It is a larger, coarser plant than the others. For a good reason, it was named *R. lacustris* by Beck and Tracy ; but it seems not to belong to *R. Purshii*, Richardson. For preserving it a distinct species, there is good authority. Under the name above, it is described in "Flor. Bost." p. 228.

R. cymbalaria. Ph. Sea Crowfoot. Stem filiform, smooth, sending out stolons, rooting at the joints, with radical leaves reniform, on long foot-stalks, and with crenate border ; flowers yellow, petals spatulate ; grows on salt marshes. *Big.*

R. Pennsylvanicus. L. Bristly Crowfoot. Flowers in August in woods and meadows, and is a large, branching plant, covered with horizontal, hairy bristles, or is hispidly pilose, 1 – 2 feet high. *T. and Gr.* It is well described in "Flor. Bost." *Big.*

R. fascicularis. Muhl. Roots fascicled, fleshy ; stem short ; radical leaves ternate, and on long stalks, rather variously divided ; whole plant has a smooth, silky pubescence ; calyx villous and spreading, and yellow inside ; flowers in April and May, and grows on dry, rocky hills. *Big.*

R. hirsutus. Curtis. Rough Crowfoot. Whole plant hirsute, rough-hairy, branching, with leaves 3-lobed or ternate, with obtuse sections ; flowers whitish-yellow, in a reflexed calyx ; grows in wet fields, and is in flower in July.

The species of Ranunculus have been thus fully described, as they are relatively common plants, and most of them spread over the State. They have few interesting properties, and, like very many others, are not employed to any very beneficial purpose.

Delphinium. L. 12. 2. Larkspur.

Five or six species are cultivated in the gardens, for their beauty. The *Bee Larkspur* bears a flower which has, at a little distance, a striking resemblance to a *bee*. Some of these species are not found in common gardens, and have not been introduced many years.

Aconitum. L. 12. 5.

A. napellus. L. Monk's Hood, is often found for ornament in gardens. The bright, glossy, green leaves, and singular flower, make it a beautiful plant. Strong, acrid property. Named from a town in Bithynia, where it grows, viz. *Acona. Loudon.*

Another species is also seen, but more rarely ; fine palmate leaves, and flexuous or zigzag stem.

Nigella. L. 12. 5.

N. Damascena. L. Fennel-flower, with its white or light-blue flowers, surrounded by a large, pinnate, and much-divided involucre, and covered with its similar leaves, is a fine plant for gardens ; its large capsule resembles a rattle-box.

As the stamens have short filaments, and are below, and removed from the pistil, the styles bend over, and bring down their stigmas in contact with the anthers, so as to receive the pollen and be fertilized. This contrivance is palpable to every observer, and illustrates one particular in vegetable physiology.

The black color of the seeds gives name to the genus, from the Latin for *black*. The seeds of this and some other species, are used to adulterate pepper. *Loudon.*

Adonis. L. 12. 13.

A. autumnalis. L. Pheasant's Eye. Is so named from its coral-red flower; and often called *Soldier-in-green*, from its fine bright-green foliage, terminated by a scarlet corolla.

Some of this genus are employed as emmenagogues. The plant was fancied to have sprung up from the blood of the wounded *Adonis*. *Loudon*.

Pæonia. L. 12. 3. Peony.

P. officinalis. L., is the well-known Peony of our gardens. As the flower becomes double, or the stamens change into petals, by cultivation, it is admired for its large head of petals, as well as for its fine foliage. It is a hardy plant, finding safe winter quarters in its large tuberous roots, from which it rises early in the spring. The root is said to be acrid and bitter, and antispasmodic (*Lind.*); but the two former properties are slight in its cultivated state. It is sometimes grated and given as a stomachic.

Named after *Pæon*, a physician of antiquity, who used it in medicine. *Loudon*.

Many of the species are splendid ornaments of the greenhouse.

ORDER 4. PAPAVERACEÆ.

Calyx 2-leafed, or having 2 sepals, deciduous, with corolla of 4 petals, or some multiple of 4, and many hypogynous stamens; germ or ovarium single, without a style, or having only a short one, containing numerous seeds. The plants contain a milky or yellow juice; leaves divided; flowers not yellow. *Lind*.

The *poisonous* properties of this order are well known. It does not contain a great many plants, and a large proportion are found in Europe; a few in our country. The appearance of a milky juice in plants should always lead to caution in the use of them. *Opium*, the substance formed from the juice of some plants of this order, is from the Greek for *juice*.

Chelidonium. L. 12. 1.

C. majus. L. Celandine. Stem two feet high, with pinnate leaves, pale-green, and rather glaucous; flowers yellow, in a sparse umbel, and their parts fall off prematurely; a bright-yellow juice abounds in all parts of the plant, unless the seed is an exception; grows about yards and fences, and flowers in

May and June, perennial. *Big.* It was doubtless introduced, and has become naturalized. The seeds are crested, and disposed in a silique-like capsule. Named from the Greek for *swallow*, as flowering when that bird appeared; the English seems to be a corruption of that word. *Loudon.*

Sanguinaria. L. 12. 1.

S. Canadensis. L. Bloodroot. Named from the red juice of its root, from the Latin *sanguis*, blood; bears a single white flower on a stem 6–8 inches high, and sends up radical leaves beautifully lobed, and glaucous underneath; calyx falls off with the full expansion of the flower; flowers in April, about dry woods and hedges; root horizontal, fleshy, zigzag, sending off many radicles, whose bud at the end contains the plant of the next year, a careful dissection of which shows the flower and leaf, and even the stamens, by a small magnifier. Strong medicinal properties, emetic, cathartic. See Bigelow's "Medical Botany."

Papaver. L. 12. 1. Poppy.

P. somniferum. L., the common poppy of the gardens, cultivated merely for ornament, as a general fact, in our country. The well-known drug, *opium*, is obtained by incisions of the stem and fruit-vessel; the white juice becomes dark-colored on exposure to the air, and seems to contain three important substances. The narcotic principle, which produces sleep, is called *morphia;* the stimulating power seems to depend on its vegetable alkali, called *narcotine;* it also contains *meconic* acid, called from the Greek name of poppy, which is combined with the morphia as a vegetable alkali. As a medicine, in the hands of the skilful physician, opium, and the preparations from it, are of the highest consequence; as a drug, used by the people to produce intemperance, as in China, &c., its use becomes a tremendous evil. Seeds oily and healthful; oil is procured from them for adulterating olive oil. *Lind.* The plant is said to have been used by Theophrastus, three hundred years before the Christian era, for its power as an anodyne.

P. rhœas. L., is a smaller plant possessing similar properties,

partially naturalized about some gardens and fields. This species is so named from the Greek, *to flow* or *fall*, on account of its *fugacious* flowers.

Note. The following three orders were arranged with the preceding by Jussieu, and, though associated with it in location, it does not appear evident in what place they should be fixed. They have even been arranged in the class of Endogenæ. The subject has been long debated, and not satisfactorily settled ; the whole shows the imperfection of the Natural Method, and what advances are still to be made in it.

ORDER 5. NYMPHÆACEÆ.

Calyx many-leafed, and corolla many-petaled, passing gradually into each other ; stamens many, standing on a large fleshy disk, and around the many-seeded ovarium or germ ; herbaceous, with thick, cordate leaves, or peltate, on a long foot-stalk growing from a prostrate trunk, in still waters.

The few plants of this order are spread over the northern hemisphere. The stems have a bitter, astringent principle, and the plants are ranked among the sedatives, slightly narcotic. The order is named from the first genus, a name from the Greek for *nymph*.

Nymphæa. L. 12. 1.

N. odorata. Ait. White or Sweet Water Lily. A well-known aquatic ; leaves round, heart-shaped, floating on the water by their long petioles ; flowers on long, flexile foot-stalks, with numerous white petals of a very sweet odor ; grows in ponds, and flowers in July ; medicinal. See Bigelow's "Medical Botany."

A beautiful variety of this, with petals of a rosy tint, is cultivated at the Botanic Garden in Cambridge.

Nuphar. Sm. 12. 1. Yellow Water Lily.

N. advena. Ait. Another aquatic, sending its bright-yellow flowers and thick leaves to the surface ; petioles semicylindrical ;

sepals or leaves of calyx 6, and petals numerous, and stamens many, all standing round a large, furrowed, and ovate germ, containing many seeds; stigma peltate and large, sessile, circular, with a crenated or undulate border. *N. lutea*, Sm., is said to be confounded with this species. *Beck.*

N. kalmiana. Ait., is probably only a smaller variety of one of the preceding species; found by Mr. Boott in Sudbury River, and flowers in June.

This genus seems not to possess any interesting characters or properties. Some animals will eat the roots of some of the species. Nuphar seems to be the *Arabic* name of the plant slightly altered, from *Naufar. Loudon.*

ORDER 7. HYDROPELTIDEÆ.

Stamens many, hypogynous; ovaries 2 or more, style short; calyx 3 or 4-leafed, and colored; standing alternately with as many petals. Only one species of this order in our State, and only two anywhere; both American plants, and aquatics, not known to possess any valuable properties.

Hydropeltis. Mx. 12. 12.

H. purpurea. Mx. Water Shield. Takes its name from its fine, flat, elliptical leaf, floating on the surface of water, and attached by its centre to the long leaf-stalk, woolly on the under side, and smooth and shining on the upper; bears dark purple flowers, on a long stem, from the side of a leaf-stalk; flowers in July; whole plant covered with a gelatinous substance. Ponds; as on Taconic Mount.

ORDER 8. PODOPHYLLEÆ.

Sepals 3 or 4, often deciduous; petals several, around the hypogynous stamens; germ single, with a single nearly sessile stigma; the enlarged germ becomes succulent, or coriaceous, many-seeded; leaves large and lobed. This order is composed of American plants; only two species, and only one north of Pennsylvania.

PODOPHYLLUM. L. 12. 1.

P. peltatum. L. May Apple, or Mandrake. Stem a foot high, dividing into 2 large and lobed peltate leaves, with one flower from the fork of leaves; the fruit becomes large, juicy, pleasantly acid, and is often eaten; spread over much of the State, but less abundant than in the States west and south. Flowers large and white; May or June; grows in rather damp woods, not in marshes. Medicinal; Bigelow's "Medical Botany."

A gentleman left Georgia in the last of March, when this plant was in flower, and as he travelled leisurely northwards, found this plant in flower in all his tour; when he reached the western part of our State, on the last of May, it had just begun to show its blossoms. The genus is named from the Greek for *foot* and *leaf*, from the form of the leaf and its foot-stalk.

ORDER 9. CRUCIFERÆ.

Sepals and petals 4, alternating, and each cruciform, or in opposite pairs; stamens 6, one pair opposite and shorter, the 4 longer in 2 opposite pairs; ovarium superior; stigmas 2, united as one; fruit a short or long silique or pod; leaves alternate; flowers generally yellow; herbaceous.

Plants of this order abound in the temperate zone of Europe; they are relatively few in North America, and fewer still in the New England States.

The properties are stimulant and antiscorbutic; in some there is considerable acridness in different parts of the plant; some are healthful and nutritious as food. The order is named from the position of the parts of the flowers opposite each other, so as to form a cross, in Latin *crux*.

SINAPIS. L. 13. 2.

S. nigra. Sm. The common Mustard. This was introduced, and is naturalized in many places. The culture of the plant for its seed is said to be very profitable. As a vegetable for *greens*, in its young state, it is highly esteemed, and would be thought far preferable to Spinach, if it were equally well known. The seeds have various medicinal uses.

S. alba. L. White or Yellow Mustard, has a great resemblance to the other, but is different, and more rarely cultivated.

From the Greek name of the plant of nearly the same sound ; *mustard* is from the Latin for *hot must. Loudon.*

ERYSIMUM. L. 13. 2.

E. officinale. L. Hedge Mustard ; grows about gardens, and beside fences ; resembles mustard, but is a smaller and more diffusely branched, and more rough and ragged in its appearance. Stem 2 feet high, and leaves runcinate, or lion-toothed ; flowers from June to September. Its properties of little value. Supposed to be healthful, and named from the Greek, *to cure.*

THLASPI. L. 13. 2.

T. bursa-pastoris. L. Shepherd's Purse, so plentiful about gardens and in roads and fields, is known by its triangular, wedge-form, obcordate capsule, and its radical leaves pinnatifid. April to October. Introduced.

T. campestris. L. Yellow Seed. Found in the fields, and especially among flax, with the seed of which it was probably brought from Europe ; its capsule is inflated and obcordate ; stem-leaves dentate and sagittate ; flowers in June.

Both species are mere weeds ; from the Greek, *to compress*, from the *flattened* fruit or seed. *Loudon.*

RAPHANUS. L. 14. 2.

R. raphanistrum. L. Cudloch. Wild Radish. A very troublesome plant in cultivated fields, rough, bristly, glaucous, with lyrate leaves ; stem two feet high ; flowers in August ; introduced, but naturalized in the woods of Chelsea Beach Island. *Big.*

R. sativus. L. Radish ; cultivated for its root, of various forms, taper-form, turnip, &c., and used as a relish, from its pleasant spicy taste.

From the Greek, for *rapidly appearing*, on account of its rapid growth. *Loudon.*

LEPIDIUM. L. 14. 1.

L. sativum. L. Peppergrass; well known in the gardens, its many-cleft leaves forming a pleasant relish; exotic, from Europe. The resemblance of the capsule to a *scale*, gives name to the genus.

L. Virginicum. L. Wild Peppergrass. Stem branching, a foot high, with some pinnate leaves, and upper ones long and tapering; much resembles the garden plant; grows in light soil, and flowers in June; silicle or pod is lentiform; stamens often only two.

COCHLEARIA. L. 14. 1.

C. Armoracea. L. Horse Radish; naturalized in many places, cultivated for its root; leaves large and long and wide. Named from a word for *spoon*, from the *spoon-like* depressions in the leaves. *Loudon.*

C. officinalis. L. Scurvy Grass. Cultivated occasionally in gardens.

CAMELINA. Crantz. 14. 1.

Its name imports *dwarf-flax;* a genus of few species, belonging to Europe. The seed-vessel is a roundish pouch, with swelling valves, and cells many-seeded.

C. sativa. DC. Gold of Pleasure. Cultivated occasionally in England for the *oil* of its *seeds*, and has lately appeared in the eastern part of this State. Stem about 2 feet high, branched; flowers small, numerous, yellow, corymbose; pouch long-pedicillate; leaves roughish, lanceolate, and sagittate; fields; June. The plant has been introduced for some time into the Middle States.

CAKILE. L. 14. 1.

C. maritima. Nutt. American Sea Rocket. Grows along the seashore; stem flexuous, deep-green, smooth, with leaves

fleshy, sinuate, toothed, caducous ; flowers in July ; grows near Boston, and on Cape Ann ; see *Bunias*, in Bigelow's "Flor. Bost." p. 251. Common in Europe.

Cardamine. L. 14. 2.

C. Pennsylvanica. W. Water Cress. Stem about a foot high in fruit, with smooth pinnate alternate leaves, and small white flowers ; growing out of water, and beside water, or in wet places ; pleasant spicy taste, and used by common people as a cress ; flowers in June.

Dr. Beck unites *C. Virginiana*, L., and the plant named above, under *C. hirsuta*, L. It certainly is very difficult to find the distinctions of the three species. The variety called *C. virginica*, W., is found in Berkshire County.

C. teres. Mx. Credited to the vicinity of Amherst College ; is of little consequence, though interesting to botanists.

The genus is named from the Greek, for *heart-strengthener*, on account of its *stomachic* qualities. *Loudon.*

Sisymbrium. L. 14. 2.

The Greek name of an unknown plant. *Loudon.*

S. amphibium. L. Water Radish. A coarse plant with small yellow leaves, growing in wet places, and flowering in June.

S. nasturtium. L. English Water Cress. With pinnate leaves, introduced from England.

Barbarea. L. 14. 2.

B. vulgaris. R. Br. Winter Cress. Stem 1–2 feet high, branching ; leaves wing-like, and much-divided, and the terminal division roundish, upper leaves undivided and dentate, and the root leaves green through the winter ; sand and gravel of banks of streams ; with yellow flowers ; May and June. Sometimes called Water Rocket.

Brassica. L. 14. 2.

Derived from the *Celtic* name of *cabbage*. *Loudon.*

B. napus. L. Kale. Naturalized in a few places ; leaves smooth, upper being heart-shaped and long, clasping. Native of England and Holland.

B. rapa. L. Turnip. Excellent as food for man and cattle ; the several kinds are varieties. Cultivation has shown that new land, or just cleared, is not essential to the production of the finest turnips ; native of England.

B. ruta-baga. Extensively cultivated as rich food for cattle, being produced in great quantity compared with other articles raised on equal land. It is commonly considered only a variety of the following, but is made a variety of *B. campestris* by De Candolle.

B. oleracea. L. Cabbage, Broccoli, Cauliflower. Of too much use not to be known. The varieties are many, and cultivated with considerable ease ; cabbage is, perhaps, the most sure crop. Introduced from England.

The introduction of the turnip into cultivation in England, is the era from which their modern agriculture is dated. Its culture deserves special attention.

CHEIRANTHUS. L. 14. 2. Wall Flower.

Several species are cultivated in the gardens, or in pots, for their flowers. Their beauty is too well known to need remark.

The generic name is from the Arabic name for a plant with red and sweet flowers. *Loudon.*

DRABA. L. 14. 1.

D. verna. L. Whitlow Grass. Leaves radical, oblong, acute, hairy ; flower-stem 2 – 3 inches high, ending in a raceme of white flowers ; flowers in April and May, in the fields.

DENTARIA. L. 14. 2. Tooth-root, Pepper-root.

D. diphylla. Mx. Stem about a foot high, sends off 2 ternate leaves, and a raceme of white flowers ; grows in open woods, and flowers in May.

D. laciniata. W. Stem is scarcely as high as the other, and sends off 3 ternate leaves, or 3 leaves divided into 3 segments, linear, and somewhat toothed, with reddish white flowers in a raceme ; grows in woods, and flowers in May.

Both these are rather beautiful plants.

Lunaria. L. 14. 1.

Two species are cultivated for their flowers ; one bears its fruit in a flat, oval, or roundish pod, of singular appearance, and an inch in diameter ; flowers bluish and purple.

Iberis. L. 14. 1. Candy Tuft.

A species with whitish flowers has been long cultivated as edging for aisles in gardens and walks. Another beautiful variety, with purple flowers, is becoming common. Native of Spain, Tuscany, &c. So called from *Iberia*, the ancient name of Spain.

Arabis. L. 14. 2.

Five species are credited to this State.

A. falcata, Mx., which is *A. Canadensis*, L., is named from the shape of its pod, flat and curved like a scythe, and called *Sicklepod.* Stem 2 or more feet high, round and small, with sessile leaves ; flowers in woods, in June.

A. rhomboidea. Ph., has fine rhomboid leaves on the stem, and heart-shaped ones at the root ; flowers white ; grows on wet meadows, Roxbury. Blossoms in May ; root tuberous and farinaceous. *Big.*

A. hastata. L. Hairy Tower Mustard ; has the general appearance of common mustard, though it is a much smaller plant.

A. thaliana. L. Wall Cress ; is a small plant about six inches high, branched ; radical leaves on petioles ; stem leaves sessile and few ; flowers white in a corymb ; on hills, and blossoms in May.

Of the other species, *A. hirsuta*, Sm., there is some doubt, which cannot be solved at present.

Isatis. L. 14. 1.

I. tinctoria. L. Woad, so valuable for its blue coloring matter; is supposed to be little cultivated in this State. The leaves at the root are crenate, on the stem arrow-form. Named from the Greek, *to render equal*, from its supposed power to smooth the roughness of the skin. Used to color the skin of the ancient Britons and Picts, from which they were named. *Loudon.*

Hesperis. L. 14. 2.

H. matronalis. L. Garden Rocket. A fine plant in the gardens, and, when its flowers become double, it is thought quite handsome; a native of Lake Huron, and sometimes called *Dame's Violet.*

H. tristis. L. Yellow Rocket, is less cultivated than the other; stem hispid and branched; flowers handsome.

The genus is named from the Greek for *evening*, as the flowers are then more fragrant. *Loudon.*

ORDER 10. FUMARIACEÆ. Fumitory Tribe.

Two deciduous sepals; 4 cruciate petals, sometimes so united as to appear one, or only 2 united, cohering at the apex, and inclosing the anthers and stigma; stamens 6, often in 2 sets, rarely separate; ovarium superior, and one-celled; leaves much-divided, often having tendrils, commonly alternate; herbaceous.

The plants have not much odor, but a watery and not milky juice, and are said to be diaphoretic and aperient; but they are not used for these properties. Only a few genera, and not numerous species, belong to this order, and these are scattered over the northern temperate zone.

The fecundation of the Fumariaceæ shows special contrivance. While the anthers are confined by the corolla, and the pollen seems unable to reach the style, the stigma projects two blunt horns, one of which passes to each of the two sets of anthers, so as to secure the pollen as it exudes from the anther, or is forced out by the contractions of the anther.

Fumaria. L. 16. 6.

F. officinalis. L. Fumitory. Introduced from Europe, but growing about gardens and fields; rather handsome, glaucous, pinnate leaves, red or crimson flowers, seed in a pouch or pod; stem a foot or more high; flowers in July. Annual.

On account of the disagreeable smell, named from the Latin for *smoke*. *Loudon.*

Corydalis. Vent.

The Greek name of Fumitory. *Loudon.*

C. cucullaria. Pers. Colic Weed. Bears a cluster of white flowers closed at the top, on radical and leafless white stems about six or eight inches high; leaves radical, much-divided into leafets, delicate green, slightly glaucous; blooms in May, along hedges and light woods; root bulbous, or a collection of small solid tubers.

C. glauca, Ph., and *C. formosa*, Ph., are both beautiful plants of the woods, and might ornament any garden; flower in May.

C. fungosa. Pers. Climbing Colic Weed; has already been introduced from our woods into the gardens and yards, where it climbs or follows the trail placed for it often twenty feet in length, forming fine arches and arbours, and bearing numerous clusters of whitish or flesh-colored flowers; the corolla has a spongy mass inside, as if one petal. Stem, climbing by tendrils, and full of flowers; blossoms in July.

The species have suffered much in their names, which have been repeatedly changed.

ORDER 11. CAPPERIDEÆ. Caper Tribe.

Monosepalous or polysepalous, four divisions, and as many petals cruciate; stamens definite or indefinite, rarely tetradynamous, commonly many, mostly perigynous; ovary on a short stem; leaves various and inflorescence also; some are herbaceous.

Cleome. L. 6. 1.

C. dodecandra. L. Stem branched, viscid, pubescent, strong odor, ternate leaves, and purplish white flowers in a raceme; pods swollen, hairy viscid; blossoms in June, in sandy places. Narcotic, anthelmintic, emetic, cathartic.

ORDER 22. BERBERIDEÆ.

Sepals or leaves of calyx, 3 to 6, deciduous, having scales around them; petals once or twice as many as sepals, hypogynous, with an appendage inside at the base; stamens opposite the petals, and of equal number with them; single 1-celled ovary; shrubby, or herbaceous, with compound leaves. Only one herbaceous genus belongs to our State.

Leontice. L. 6. 1.

L. thalictroides. L. Poppoose Root, and False Cohosh. Stem a foot or more high, with a single, much-divided leaf, and having 2–3-lobed leafets; flowers small and yellowish-green; sepals and petals each 6, and a scale at the base of the petals; berries deep blue; blossoms in April and May; in drying, the plant becomes black; it is dark-colored in its younger state. Is the Caulophyllum of Mx.

The other genus is the *Barberry*, so well known for its red, finely acid berries.

ORDER 24. MALVACEÆ.

Calyx generally divided into 5 parts, sometimes 3, or 4, or 5 sepals, more or less united at the base, often with a surrounding one or more leafed involucre; hypogynous petals, usually 5; anthers mostly very numerous, with their filaments monadelphous, or in one set; many fruit-vessels, united round a common axis, and each bearing a style, form the ovarium; leaves alternate; some of the plants herbaceous, and contain much mucilage; used as emollients; natives of the torrid and warm temperate zones.

ALTHÆA. L. 15. 12.

A. officinalis. L. Marsh Mallows. Found on the seacoast in salt marshes, with a strong, erect stem, two feet high; thick-woolly, and leaves cordate and soft-downy on both sides; entire, or 3-lobed; large purple flowers; blossoms in August; probably introduced.

A. rosea. L. Common Hollyhock. Well known in our gardens; flowers red, white, yellow, very dark-brown. Within a few years the column of stamens has changed into small petals, arranged into three or more stellate sets, and adding much to the beauty of the flower. Leaves heart-form.

A. ficifolia. L. Fig-leafed Hollyhock, has leaves somewhat palmate in 7 lobes.

HIBISCUS. L. 15. 12.

H. palustris. L. Marsh Hibiscus. Grows about salt marshes; stem 3 – 5 feet high, erect, downy, with ovate and dentate leaves, soft-downy beneath, and whitish; flowers large, purple; outer calyx of numerous divisions; inner calyx of 5 sections; blossoms in August; on Charles River. *Big.* The fibres of the bark are strong, and are wrought sometimes into cordage.

Several exotic species are cultivated for ornamental plants, as *H. Moscheutos*, W., *H. Syriacus*, L.; *H. Trionum*, L., or Bladder Ketmia, Flower of an Hour, is a common species in the gardens.

MALVA. L. 15. 12.

M. rotundifolia. L. Low Mallows. Has a prostrate stem, with roundish and cordate leaves; flowers white and reddish-white, pedicelled; grows in fields, and especially about houses; blossoms from June to October, and is common everywhere, being like catnep, motherwort, &c., one of the attendants of man in his habitations in temperate climes.

M. sylvestris. L. High Mallows. Somewhat naturalized, growing for years without any cultivation; stem 4 – 6 feet high,

and hairy, with large roundish leaves, about 7-lobed, and with reddish purple flowers on short pedicels ; blossoms in July, in fields and gardens ; introduced.

M. crispa. L. Crisped or Curled Mallows, whose leaves are so beautifully *crisped*, light-green, and angular ; whitish flowers, smaller than the preceding ; cultivated in gardens, like the other, for its mucilaginous leaves ; supposed to be useful in poultices. The bark is sometimes formed into cordage.

M. moschata. L. Musk Mallows. Is the beautiful mallows of the gardens, with delicate white flowers, and yielding an odor so greatly resembling *musk*, when faintly but clearly perceived ; can scarcely be said to be naturalized. Its snow-white flowers recommend it to the eye of taste.

Probably other species may be cultivated in some parts of the Commonwealth.

Sida. L. 15. 12.

S. abutilon. L. Indian Mallows. Stem 2 – 5 feet high, with large, roundish, cordate leaves, woolly ; flowers on short petioles, yellow or orange-colored ; grows on the sides of roads and in waste fields, and blossoms in July ; introduced, but fully naturalized.

Lavatera. L. 15. 12.

L. arborea, L., Tree Mallows, and *L. Thuringiaca*, L., are cultivated for ornament. They afford beautiful flowers ; named after the celebrated *Lavater ;* the former being a native of England, Spain, and Africa, and the latter of Germany, Hungary, &c.

Malope. L. 15. 12.

M. malacoides. L. Smooth Mallows. Introduced from Tuscany and Barbary ; resembles the preceding, but its outer calyx is 3-leafed, and that of Lavatera is 3-parted ; flowers of both much alike, light rose-colored. Some beautiful species are cultivated in the greenhouse.

GOSSYPIUM. L. 15. 12. Cotton.

G. herbaceum. W. The common Cotton plant was introduced from India or Africa ; at the north it is cultivated for ornament and curiosity in gardens ; stem about 2 feet high, bearing large white flowers, with its seeds involved in long wool. Its history belongs not to the botany of Massachusetts.

Other exotic genera are cultivated in the greenhouse.

ORDER 36. HYPERICINEÆ.

Outer floral envelope divided, monosepalous, or of 4 or 5 sepals, including 4 or 5 petals, hypogynous ; stamens many, indefinite, hypogynous, often in 3 or more sets ; leaves not always opposite ; flowers commonly yellow ; some of the order are herbaceous.

HYPERICUM. L. 12. 5.

H. perforatum. L. St. John's Wort. A well-known plant in neglected and barren, sandy fields ; stem 2 feet high, branched, and bearing many yellow flowers for a considerable time ; leaves opposite, with many dots over the surface, as if they had been *perforated* by a needle.

Eight other species, *angulosum*, Mx., *ascyroides*, W., *Canadense*, L., *Corymbosum*, L., *cystifolium*, Lmk., *parviflorum*, W., *sarothra*, Mx., *Virginicum*, L., are credited to this State, and some of them are rather common ; but, with some striking exceptions, they have little beauty, and have not any useful application. Another species has lately been found near Boston. *Tuckerman.*

H. ellipticum. Hooker. Stem a foot or more high, with elliptic, obtuse leaves an inch long, and cyme nearly naked.

ORDER 38. SAXIFRAGEÆ. SAXIFRAGE TRIBE.

Calyx divided sometimes to the base into 4 or 5 parts ; petals none, or 5, between the divisions of the calyx ; stamens

5 or 10, perigynous or hypogynous, as the calyx is above or below the germ or ovary, which is commonly composed of 2 carpels and their lobes, terminated by the sessile stigma ; leaves simple ; herbaceous.

Saxifraga. L. 10. 2.

S. Pennsylvanica, L., Water Saxifrage, and *S. Virginiensis*, Mx., Rock Saxifrage, are named from their usual habitations ; the former grows two feet high, bright-green ; the latter is much smaller, and flowers very early in the spring. Their properties are of little consequence.

Parnassia. L. 5. 3.

P. Caroliniana. Mx. Parnassus Grass. The English name is a great absurdity, as no part of the plant resembles any of the grasses. Stem a foot or more high, with a single ovate leaf in the middle, and several oval leaves at the root; flowers white, petals longer than the calyx ; 5 nectaries of 3 threads ending in yellow heads, alternating with the stamens ; blossoms in August, and grows in wet meadows and beside cold streams ; plentiful in Berkshire County, and found also in the eastern counties.

Chrysosplenium. L. 10. 2.

C. Americanum. Hooker. A small, creeping, succulent plant, about springs and brooks, with 8 stamens commonly ; leaves opposite, roundish, and narrowed to the petiole ; flowers in April, with scarlet anthers ; dignified with the name of Golden Saxifrage ; of no obvious use.

Hooker considers this plant as different from the European, *C. oppositifolium*, L., which name had been given to it.

Mitella. L. 10. 2.

M. diphylla. L. False Sanicle. Has its flowers on a stem about a foot or less high, in a raceme, with 2 opposite leaves, and having radical leaves on bristly petioles, cordate, dentate, and lobed ; flowers small, white, delicate, their 5 petals being beautifully pinnatifid, standing on the calyx ; grows abundantly in moist woods, and blooms in June.

M. cordifolia. Mx., has a rather shorter stem, with only one leaf or none, but with cordate, lobed, and crenate leaves at the root; sometimes creeping by suckers; petals beautiful, like the other; grows in rocky, moist places, and flowers in June.

Tiarella. L. 10. 2.

T. cordifolia. L. Mitre Wort. Resembles the preceding in its leaves and stem; flowers yellowish-white in a long raceme; grows in woods with *M. diphylla;* of delicate appearance, but no useful application.

Reseda. L. 12. 3.

R. odorata. L. Mignonette, is a common exotic of the gardens, a finely-scented plant. A much taller variety, without odor, is also cultivated for its beauty, *R. frutescens.*

R. luteola, L., Dyer's Weed, is merely noticed as rarely cultivated.

ORDER 46. CACTEÆ. Indian Fig Tribe.

Sepals and petals numerous, usually indefinite; stamens indefinite, somewhat cohering to the petals; ovary inferior, 1-celled; style filiform; fruit succulent; leaves wanting, or fleshy, smooth, entire or spine-like.

Cactus. L. 11. 1.

A genus of succulent plants, various and singular in structure, commonly leafless. Many species are cultivated in the hot-houses, on account of their singular form, and the beauty of their flowers.

C. opuntia. L. Prickly Pear. Named from the town *Opus*, in Greece. It is a well-known exotic. Nantucket. *T. A. Greene.*

ORDER 47. ONOGRARIÆ. Evening Primrose Tribe.

This includes 4 genera, and nearly a dozen species in our State. The plants of this order belong to temperate climes; and possess no very interesting or useful properties.

Calyx superior, tubular, with a 4-lobed division ; petals inserted on the throat of the calyx, and equal to the divisions of the calyx ; stamens definite ; style single, with a capitate or 4-lobed stigma ; leaves simple, alternate or opposite.

ŒNOTHERA. L. 8. 1.

Œ. biennis. L. Scabish. Tree Primrose. Stem 3 – 5 feet high, villous and scabrous ; flowers yellow, in a terminal spike, with obcordate petals ; leaves ovate-lanceolate, alternate, pubescent ; found in fields, and flowers from June to September. Roots farinaceous.

Œ. fruticosa. L. Sundrop. Rather shrubby, was found by T. A. Greene, at Plymouth.

Œ. pumila. L. Low Scabish. Is common over dry fields.

Œ. grandiflora. Ait. Garden Scabish. A native of the Southern States, is cultivated for its flowers ; much resembles the first.

ISNARDIA. L. 4. 1.

I. palustris. L. Water Purslane. Stem prostrate, creeping, smooth, with opposite and ovate-lanceolate leaves ; flowers single, axillary, without corolla ; grows in wet places and pools, and blossoms in June. Has a slight resemblance to common Purslane.

I. alternifolia. DC. Seed Box. Stem 2 feet high or more, branched, smooth ; leaves lanceolate, alternate, slightly scabrous on the margins and under side ; flowers axillary and single ; capsule roundish-obovate, 4-angled, and winged ; grows in swamps, and flowers in July.

EPILOBIUM. L. 8. 1.

E. spicatum. Lam. Sweet Willow Herb. Stem 3 – 6 feet high, leafy, round, smooth, branched above, ending in a raceme of many flowers ; leaves linear-lanceolate and veined ; flowers purple, with irregular petals ; grows along woods and moist hedges, and blossoms in July. This is a very showy plant.

Seeds crowned with a silky down. Would form a fine plant for the garden.

The four other species, *coloratum*, and *lineare*, Muhl., *molle*, T., *palustre*, L., have few attractions.

Gaura. L. 8. 1.

G. biennis. L. A showy plant with terminal spikes of sessile, dark rose-colored flowers on a hairy, purplish, herbaceous, erect stem, with alternate, lanceolate, toothed leaves. Differs from an Epilobium in the tube formed by the calyx being obovate, and the seeds having no pappus. Found by G. B. Emerson in Brookline.

ORDER 48. HALORAGEÆ.

So called from the genus Haloragis, which grows in the eastern Archipelago.

Floral envelopes minute, superior ; stamens inserted, with the petals, on the calyx, which is permanent on the ovary of one or more cells ; leaves of various positions ; flowers axillary, sessile, some are monœcious, or diœcious. Have no important properties ; some are mere weeds ; spread widely over the earth.

Myriophyllum. L. 20. 12.

M. spicatum. L. Spiked Water Millfoil. Stem long, rising through the water, and projecting the spike of whorled and naked flowers above the surface ; leaves immersed, whorled, capillary-pinnate ; 3 bracts to each flower, the middle one largest ; petals oblong, obtuse, brownish-green, caducous ; flowers in July and August ; grows in ponds and deep still waters.

M. tenellum, Big., is found at the pond in Tewksbury.

M. procumbens, Big., found at Danvers by Dr. Nichols.

Both these species were investigated by Dr. Bigelow, are rather small and singular plants, and grow in the mud of ponds.

M. verticellatum. L. Water Millfoil. Grows also in water,

with whorled pinnate leaves, and the terminal spike leafy ; flowers in July. The flowers are sometimes perfect.

M. ambiguum. Nutt. Floating Millfoil. Stem 2–4 feet high, erect, floating in large collections, dichotomous ; immersed leaves capillary, emerged leaves pectinate ; flowers axillary, solitary, sessile ; blossoms in July ; found near New Bedford.

PROSERPINACA. L. 3. 3. Mermaid Weed.

Two species, *P. palustris*, L., and *P. pectinata*, Lam., grow in wet grounds, and round marshy places ; the former has lanceolate-linear leaves, and the latter pectinate leaves ; flower in July and August.

Another genus, Hippuris, closely related to Myriophyllum, and found in the State of New York, is probably yet to be detected in our ponds. It is called *Mare's Tail*, from its peculiar form.

ORDER 49. CIRCÆACEÆ.

Calyx tubular, with a 2-parted limb, deciduous ; petals 2, and stamens 2 on the calyx ; ovary inferior and 2-celled ; leaves opposite and toothed ; flowers in racemes. No valuable properties. Only one genus.

CIRCÆA. L. 2. 1. Enchanter's Night Shade.

Two species, *Alpina*, L., and *Lutetiana*, L., are common in moist places along hedges, in rather cold soil, and loving shaded places. They have received an English name, as if they had some importance ; common to Europe and America.

Named after Circe, the famous enchantress of old.

ORDER 51. LOASEÆ.

A 5-parted calyx, with 5 or 10 petals ; stamens indefinite ; style 1 ; ovary superior or inferior ; herbaceous, hispid, with pungent hairs, secreting an acrid juice ; peduncles axillary, 1-flowered. No known properties, and nothing remarkable, ex-

cept the stinging hairs of some species. Only two genera of the order in this country, and one in this State.

Centaurella. Mx. 4. 1.

C. paniculata. Mx. Screw Stem. Stem 4–8 inches high, square, slender, somewhat twisted, branched, smooth; leaves minute, subulate, alternate below; flowers small, greenish-white, on the ends of the branches; grows in meadows, and blossoms in August.

ORDER 52. SALICARIÆ. Loosestrife Tribe.

Monosepalous divided calyx, with petals between the divisions, deciduous, or wanting; stamens rise from the side of the tube of the calyx below the petals, and from 1 to 4 times as many; style filiform, rising from the ovary, superior; generally herbaceous, with branches often 4-sided; flowers axillary, or in terminal spikes or racemes; leaves usually opposite. The properties are strangely diverse, astringent, vulnerary, venereal, diuretic, vesicatory, coloring, and dyeing. Belongs to temperate regions.

Lythrum. L. 11. 1.

L. verticillatum. L. Swamp Willow Herb. Stem 2 feet high, rather woody towards the base, with opposite lanceolate leaves, or in threes, and fine purple spreading corolla of 5 or 6 petals on the calyx; blossoms in August, and grows in swamps; often called *Grass-poly*, and is a fine plant; short-lived flowers.

L. salicaria. Ph. Willow-leafed. Supposed to be a rare plant, but has been found near New Bedford.

L. hyssopifolium. L. Hyssop-leafed. Has a stem a foot or more high; in low grounds; flowers purple; handsome.

Ammannia. L. 4. 1.

A. humulis. Mx. A procumbent plant, with nearly sessile leaves, tapering at the base, and with small, red, sessile flowers, in

the axils of the leaves ; flowers in August ; grows in wet meadows ; not attractive enough to get an English name.

CUPHEA. Jacq. 11. 1.

C. viscosissima. Jacq. Calyx tubular and ventricose, 6 – 12-toothed ; about 6 petals ; stem a foot and more high, erect, branching ; flowers lateral, solitary, purple ; hills and wet grounds ; found in Pittsfield, Berkshire County, by Dr. G. White. It is an annual plant, very viscid ; blooms in September.

ORDER 54. MELASTOMACEÆ.

Calyx 4 – 6-lobed ; petals equal in number to the divisions of the calyx, and rising from their base ; once or twice as many stamens as petals ; ovary attached somewhat to the calyx, of several cells, containing innumerable minute seeds ; leaves opposite, usually entire ; flowers in a terminal thyrse ; some herbaceous. One genus in this country. Slight astringency belongs to the order ; the fruit of many is succulent and eatable, and of some, *colors the mouth black*, which gives name to the order. A great many species are contained in this order, but they belong chiefly to the tropics, 78 to India and the Indian Archipelago, 12 to Africa and its islands, and 620 to America ; and only 14 are found out of the tropics, and of these 8 belong to the United States. *Lindley.* Only one genus belongs to the Northern States, and only one species to this State.

RHEXIA. Brown. 8. 1.

R. Virginica. L. Deer Grass, Meadow Beauty. Stem a foot high, square, membranous on the angles, somewhat hairy, with sessile, ovate-lanceolate, ciliate, smooth leaves ; flowers purple, large, in dichotomous corymbs ; flowers in July, and grows in wet meadows. Has no important properties, but great beauty, and is well deserving cultivation.

ORDER 62. ARISTOLOCHIÆ. BIRTHWORT TRIBE.

Calyx tubular, superior, having 3 segments, and no corolla ; ovary with 3 – 6 cells, and 5 – 10 stamens, epigynous, or upon

the germ, many-seeded ; leaves alternate ; flowers axillary, solitary, of a dull color ; some are herbaceous.

Tonic, stimulant, anthelmintic, antarthritic, alexipharmic, evacuant, antophthalmic, emetic, are the properties belonging to the order.

Common in equinoctial America ; sparingly found in the temperate zones.

Aristolochia. L. 18. 6.

A. serpentaria. L. Virginia Snakeroot. This plant grows in shady woods in the Southern States, from Pennsylvania to Carolina ; stem flexuous ; oblong and cordate leaves ; flowers purplish brown on a radical peduncle ; blossoms in June. The roots are highly medicinal. Bigelow's " Medical Botany." Cultivated by the Shakers. Of this genus, 47 species have been described.

Asarum. L. 18. 10.

A. Canadense. L. Wild Ginger, White Snakeroot. Stemless ; from the root arise two kidney-form, broad, and round leaves, pubescent on both sides, and with hairy petioles ; a single flower rises between the leaves, and close to the ground, having a woolly calyx of several deeply-parted segments, on a short peduncle ; root creeping, fleshy, partially jointed ; blossoms in May, and grows in woods. The roots have a pleasant aromatic taste ; medicinal. Bigelow's " Medical Botany."

Another species is found in the South, and one in Canada, while only one is ascribed to England and other parts of Europe.

ORDER 64. SANTALACEÆ.

So named from the genus, *Santalum*, whose species belong to India and New Holland.

Calyx 4 or 5-cleft, with stamens opposite the segments of the calyx ; ovary inferior, 1-celled ; style 1 ; leaves alternate, or mostly opposite, undivided ; flowers generally in spikes ; rarely solitary or umbelliferous ; small. Few properties of interest.

In New Holland, the East Indies, &c., the plants of this order

are large trees or shrubs ; in Europe and North America, they are weeds.

THESIUM. L. 5. 1.

T. umbellatum. L. False Toad Flax. Stem about a foot high, round, erect, branching a little, with alternate, entire, sessile, mucronate leaves, oblong-ovate ; flowers in a corymb, white ; blossoms in July, on rocky hills, and in dry woods. Said to be slightly astringent.

The other genus of this order in our State, contains trees, as Nyssa, the Pepperidge, or Tupelo Tree.

ORDER 72. SANGUISORBEÆ. BURNET TRIBE.

Flowers often declinous, or stamens and pistils in separate flowers ; calyx tubular, 4–5-lobed, without petals ; stamens definite, usually alternating with the lobes of the calyx, and standing round the style which rises solitary from the ovary ; leaves alternate, with stipules ; flowers small ; often in heads ; some of the order are herbaceous. Astringent and tonic ; it is rather too late in the history of beauty, to repeat the assertion of F. Hoffman, that a decoction of Alchemilla *vulgaris*, will restore "faded beauty to its earliest freshness." *Lindley.*

The plants of this order are spread widely over the world.

SANGUISORBA. L. 4. 1.

S. Canadensis. L. Burnet Saxifrage. Stem 2–4 feet high, with pinnate leaves, and long cylindrical spikes of white flowers ; grows in wet meadows ; blossoms in August.

Another species is ascribed to the Northern States.

POTERIUM. W. 4. 1.

P. sanguisorba. L. Burnet. A plant too well known to need description ; cultivated for its beauty and pleasant-flavored leaves, with an angular stem nearly 2 feet high, and leafless, and bearing a head of not very showy flowers ; a native of England, and the South of Europe.

Alchemilla, another genus of this order, found on the high mountains of Vermont and New Hampshire, is, perhaps, yet to be found on the mountains of Massachusetts.

ORDER 73. ROSACEÆ. The Rose Tribe.

Calyx 4 or 5-lobed, with 5 equal petals ; stamens numerous, on the calyx and within the petals ; ovary superior, 1 or more, 1-celled ; leaves simple or compound, alternate, and with 2 stipules at their base.

All the rosaceous plants and their fruits are healthful. They, or some of them, are used for their astringency, or as a febrifuge, or for tanning, some for their fruits as food, some as tonic and emetic, others as anthelmintic ; a list of very different properties. They are very beautiful plants, and are widely diffused over the temperate and cool parts of the northern hemisphere. The order is large, and contains more than forty species in this State, besides the exotics of the family.

Rose is from an Armorican word, meaning *red*, the common color of the flowers.

Rosa. L. 11. 12.

R. corymbosa. Ehrh. Swamp Rose. Stem 3 – 8 feet high, prickles none, or else recurved, with leathery leaves, pinnate, 5 – 7 leafets, and long stipules ; flowers somewhat in corymbs ; fruit commonly hispid ; petals large, red, emarginate ; flowers in June, in swamps.

R. lucida. Ehrh. Grows about ponds and borders of marshes, 3 – 6 feet high, shrubby, with entire segments of calyx, spreading, appendaged ; flowers large, with emarginate petals, red ; blossoms in July or August. It flourishes well in yards and gardens, and, as it blossoms after all the other species have dropped their flowers, and continues to blossom for a considerable time, it forms a valuable addition to our flowering ornamental plants.

R. parviflora. Ehrh. Small-flowered. This seems to be ***R. Caroliniana***, Mx., a small and handsome rose of the woods, rather shrubby ; blossoms in June.

R. micrantha. Sm. Has very small *white* flowers on a bush often 6 feet high. *Big.* It is not found in the western part of the State. Resembles the following in odor, but the flowers are smaller.

R. rubiginosa. L. Sweet Brier, Eglantine. The fine odor of the leaves and flowers makes this species, rough as it is, with its strong recurved prickles, a great favorite ; it is easily cultivated, and commonly thought to be introduced from Europe. Its perfectly wild state, in the fields and along hedges in the north part of Berkshire County, has led me to doubt its importation into that part of the State.

Several species of the rose have been introduced, and are found in many gardens and yards.

R. Gallica. L., from France, the low bushy rose, with large bright-red flowers, and the only one cultivated for many years in the western part of the State.

R. Damascena. L. Damask Rose. From the South of Europe.

R. cinnamomea. L. Cinnamon Rose. From the South of Europe.

R. muscosa. L. Moss Rose.

R. moschata. L. Musk Rose. From Barbary.

R. semperflorens. L. Monthly Rose. From China.

R. pimpinellifolia. L. Burnet Rose. From the South of Europe, with its small leaves and stems, and abundance of flowers.

R. alba. L. White Rose. Delicate, from Europe.

R. Burgundiaca. L. Burgundy Rose. From Europe.

R. multiflora. L. Japan Rose. From Japan.

The *rose* has for ages been a favorite plant for ornament. About 50 species have been described, and cultivation has produced numerous varieties. More than 500 varieties and species are contained in the London catalogues, and, at Rouen, nearly double this number is enumerated. *Loudon.* Doubtless far more than those above mentioned are found in the more expensive flower-gardens in this State.

The flowers of the rose, or of several species, are valuable in medicine. For this purpose, the abundant flowers of the *cinnamon* rose, and of others, are picked. Of this species, about thirty varieties are sold in Europe. *Rose-water* is a well known preparation. The *Rubifolia* from Canada and the Lakes, and the *Cherokee* from the South, are amongst the most desirable native species now cultivated. The *Boursault*, the *multiflora*, the *Banksæ*, the *Lamarck*, are among the most beautiful European; and there are numerous varieties introduced from China, *Rosa Indica*, which have added much to the value of a family already so rich.

Potentilla. L. 11. 12.

P. tridentata. L. A small, rather beautiful species of *cinquefoil;* stem 3 – 8 inches high, nearly erect, dichotomous; leaves ternate-palmate, thick and leathery, with obovate leafets, 3-toothed at the summit; flowers white, small; grows on Wachusett and Hoosac Mountains. The bald summit of Taconic Mount is covered for a considerable distance with it. It is found also in the valley near the College in Williamstown, probably from seed brought down from the mountain.

P. Norvegica. L. Hirsute, erect, dichotomous, 8 – 16 inches high, with leaves shaped like the preceding, but toothed, and rough-haired, and yellow-flowered; blossoms in June, in old fields.

P. Canadensis. L. Five-finger. Spread over the fields, with a stem often procumbent and running, sometimes erect; resembles the strawberry at a little distance; leaves quinate-palmate; yellow flowers; blossoms from April to July.

P. argentea. L. Silvery Cinquefoil. A handsome, erect, white-tomentose, silvery-looking plant, near a foot high ; leaves quinate-palmate, obovate, revolute on the margin ; flowers yellow ; June, in fields.

P. simplex. Mx. Running Cinquefoil. Is also *P. sarmentosa*, Willd., and has a running stem and hairy, with quinate leaves, and yellow flowers ; spread over fields, and much like *P. Canadensis.*

P. anserina. L. Silver Weed. Creeps among the grass by its hairy reddish stem, with pinnate leafets, of a fine silvery appearance beneath, and solitary yellow flowers on long peduncles ; blossoms in June, and grows on salt marshes near Boston.

P. fruticosa. L., and *P. floribunda*, Ph. Woody Cinquefoil. Mere varieties of the same plant ; woody, branching, often 4 feet high, sometimes much less ; yellow terminal flowers of long continuance ; pinnate leaves ; blooms in June ; grows on the margin of ponds in marshy situations, and on cold upland tracts. A handsome shrub, and mentioned here with most of the herbaceous species.

P. confertiflora, Torrey, or Bootia *sylvestris*, Big. Stem 2 feet high, erect, stiff, round, furrowed, with upper leaves simple or ternate, and radical leaves pinnate ; petals white, roundish, and flowers partially corymbed ; blossoms in June ; whole plant covered with hairy down ; found at Deerfield, and in Berkshire County.

P. palustris. Scop. Marsh Cinquefoil. Known commonly as Comarum *palustre*, L., has a stem 18 inches high, ascending, but not erect, with leaves divided into 3, 5, or 7 leafets, oblong, serrate, and whitish beneath ; flowers in June. I found it near a pond-hole in Stockbridge, half a mile north of the church ; found also near Boston.

Note. *Cinquefoil*, of French origin, is *five-leafed ;* and, when finger-like leafets appear, it is called *five-finger.*

Geum. L. 11. 12.

G. rivale. L. Avens Root, or Water Avens. Pubescent, stem simple, erect, about 2 feet high, with a few nodding flowers, dark-colored; radical leaves lyrate, with a large-lobed terminal leafet; calyx reddish brown, closely erect, confining the veined yellowish petals; fruit with long feathery awns; blossoms in June, grows in wet meadows. Supposed by the common people to possess valuable medicinal properties.

The two other species of Geum, *Strictum*, Ait., and *Virginianum*, L., grow in woods and swamps, or along banks of streams, but are of little importance.

Agrimonia. L. 11. 2.

A. eupatoria. L. Agrimony. A hairy plant of 2 feet in height, with leaves interruptedly pinnate; flowers in a spike long and hairy, scattered and yellow; grows by fences and hedges, blooms in June; astringent and tonic.

Fragaria. L. 11. 12. Strawberry.

F. Virginiana. L. Common Strawberry. Its short stem, white flowers, and agreeable fruit, are well known. It is considered by Linnæus as a spurious berry, as the seeds project from the enlarged and fleshy receptacle. It is one of the most delicious of our native fruits.

F. Canadensis. Mx. Mountain or Woods Strawberry. This is larger than the other, the leafets broader, the peduncles longer and recurved, pendulous, while in the other only the berry is pendulous; berry longer and tapering, and less finely flavored. Woods and hills.

F. vesca. L. Garden Strawberry. Remarkable for sending out its runners; introduced from England, and several varieties cultivated for the large delicious fruit. It is singular that some of the plants bear barren flowers, blossom abundantly, but bear no fruit. It becomes necessary to destroy them, and replace them by the fertile variety.

NOTE. On the hills of Washington, in the east part of Berkshire County, a *white*-fruited strawberry is abundant in the fields, sought for from its sweetness, though it has not quite so fine a flavor, or rather has a weaker flavor than the common *red* strawberry. The leaves are somewhat villose, and the plant may be a permanent variety of *F. Virginiana.* Those fields have long produced this variety.

DALIBARDA. L. 11. 12.

D. repens. Lam. Has a rooting and creeping stem, and cordate, crenate leaves, on long petioles ; peduncle nearly radical, long, bearing one white flower ; seeds in the dry receptacle ; blossoms in June, on hills ; Greenfield and Princeton.

D. fragarioides. Mx. False Strawberry. Much resembles the common strawberry at a little distance ; bears ternate leaves, toothed, ciliate, smooth ; radical peduncle, bearing a few yellow flowers ; blossoms in June ; woods and hedges ; common in Berkshire County.

RUBUS. L. 11. 12.

R. occidentalis. L. Black Raspberry. Fruit much valued.

R. strigosus. Mx. Red Raspberry. Fruit larger than that of the preceding, and more richly flavored. There are two varieties in the woods, differing in their fruit, the one being red, and the other reddish brown, or a much darker color.

R. villosus. Ait. Blackberry, High Blackberry. A tall, large, prickly plant, bearing racemes of white flowers ; berries fine and wholesome ; the root yields a decoction considered to be healthful in dysenteric affections ; for medicinal properties, see Bigelow's "Medical Botany."

R. trivialis. Mx. Running Blackberry, Dewberry. Characterized by its name, bears large black berries, very excellent when fully ripe.

R. saxatilis. Mx. Stone Raspberry. Grows a foot high, and is an annual plant ; the preceding are perennial.

R. odoratus. L. Flowering Raspberry. Distinguished by its large purple flowers, and its large, 5-lobed, and serrate leaves ; flowers in June, in woods and hedges. Often cultivated for its beauty. Fruit is large, but sour, and is not sought for.

R. setosus. Big. Bristly Raspberry. Grows in swamps.

R. frondosus. Big. Probably a variety of *R. villosus.*

R. Canadensis. L. A small creeping plant, in woods and swamps, bearing small, dark-red, pleasant berries.

R. obovalis. Mx. Hispid with stiff hairs, ternate leaves, few-flowered ; black and sweet berries, with only a few large grains ; blossoms in June ; grows in mountain swamps.

All the species of Spiræa are woody, and belong to the shrubs, where they will be described.

ORDER 77. LEGUMINOSÆ. The Pea Tribe.

Calyx divided into 5 parts more or less deeply, often unequal, and the odd segment before, with 5 petals or less, or none, inserted at the base of the calyx, papilionaceous, or regularly spreading ; the odd petal behind ; stamens perigynous, monodelphous, diadelphous, or distinct ; ovary superior ; fruit a legume or drupe ; leaves alternate. This order is known generally by either its papilionaceous flower, or its legume, commonly called pod, like that of the pea and bean ; one of these is sometimes wanting, or rather exchanged for another form of corolla, or pericarp. Sometimes there is a rosaceous flower and leguminous fruit. *Lindley.*

This is a very important order ; it is a large one. The irritability of some of the family, as the *sensitive plant*, is wonderful and inexplicable. The plants are widely spread over the earth, and some yield important articles of food. Many of them are

trees of great beauty or use, or both ; some yield important dye-stuffs ; some are poisonous, while most have a wholesome character. Some are tonic, or stimulant, or astringent, or emetic, vesicatory, or cathartic, &c. Several yield important gums, balsams, extracts. About 280 genera belong to the order, and contain within the torrid zone 1602 species, and north of the torrid zone, 1312 species, and south of the tropic, 524 species. Many of the most interesting, are unknown in temperate climates ; 236 species are ascribed by Torrey to North America. All our plants of this order, have papilionaceous flowers ; calyx with distinct divisions ; and stamens around the pistil. Many are beautiful.

Amphicarpa. Ell. 15. 10.

A. monoica. Nutt. Pea Vine. Has a hairy, twining, slender stem, and purple flowers ; leaves ternate, with ovate leafets ; the racemes of petalous flowers are sterile, and the radical apetalous flowers fertile ; woods, July.

Apios. Ph. 15. 10.

A. tuberosa. Moench. Ground-nut. A twining plant, often many feet long, with leaves pinnate, having 5 – 7 leafets ; keel of the corolla falcate ; flowers in racemes, dense, axillary, dark-purple ; root tuberous, pleasant to the taste, raw or roasted ; blossoms in July ; woods. When the seeds have fallen from their capsules, the opened and colored fruit-vessels have a beautiful appearance, and are sometimes used with ground pine in decorations.

Baptisia. Vent. 10. 1.

B. tinctoria. Br. Wild Indigo. Stem 2 – 3 feet high, very branching, very smooth, with ternate leaves ; calyx 2-lipped, stamens deciduous, flowers 5-petalled, nearly equal, in racemes ; in drying, the plant turns black, or rather blue ; woods, in a light soil ; July. Astringent, antiseptic, emetic, cathartic.

Cassia. L. 10. 1.

Sepals scarcely united ; stamens 10, free, unequal in length, and the 3 upper ones abortive ; 5 unequal petals.

C. Marylandica. L. Wild Senna. Stem 3–4 feet high, erect, branched, smooth, with pinnate leaves in 8 or 9 pairs of leafets ; large yellow flowers in axillary racemes, almost a panicle towards the summit ; narrow, compressed legume ; blossoms in June, grows on banks of streams, or in moist places, in open fields. Medicinal. See Bigelow's "Medical Botany."

Two other species, *chamæcrista*, L., and *nictitans*, L., are smaller and handsome plants, of little consequence.

Crotalaria. L. 15. 10.

Calyx 5-parted, sublabiate, lower lip 3-cleft ; large cordate standard ; united filaments, and swollen, inflated legume.

C. sagittalis. L. Rattle Box. Stem a foot high, erect, branched, variable pubescence ; simple oblong-lanceolate leaves, with decurrent stipules ; 3-flowered racemes opposite the leaves, and yellow corolla ; seeds rattle in the inflated, mature legume ; blossoms in June, grows in dry grounds and sandy woods.

Genista. Lam. 15. 10.

Calyx 2-lipped, upper 2-parted, lower 3-toothed or 5-divided ; standard oblong-oval, and keel straight ; stamens in one set, with a flat legume.

G. tinctoria. L. Dyer's Weed. This plant yields a fine yellow color, and may have probably been introduced ; somewhat shrubby ; stem a foot high, much branched, and the upper part covered with small, yellow, nearly sessile flowers ; leaves lanceolate smooth ; blooms in July ; has covered the hills south of Salem. *Big.*

Medicago. L. 15. 10.

M. lupulina. L. Nonesuch. Introduced, and found in fields about Boston ; said to be useful as fodder for sheep ; stem procumbent ; flowers in racemed spikes, with yellow petals ; legumes reniform ; fields, June to August.

M. scutellata. L. Cultivated in gardens for its beauty ;

matting on the ground ; legume twisted in a spiral form, like a flat snail-shell. There may be other species cultivated, which are less common.

Lupinus. L. 15. 10.

Stamens all united ; legume leathery, swelling at the seeds ; calyx deeply 2-lipped ; keel acuminate.

L. perennis. L. Common Lupine. Sun Dial. Perennial, often growing in splendid clusters ; stem a foot or more high, erect, hairy, bearing large blue flowers, in a fine raceme or spike ; leaves digitate, 8 or 9 leafets, oblong, mucronate, villous beneath ; blossoms in May, in the light soil of open woods. It has long been cultivated for ornament in gardens. To it have been added several other species, exotics, within a few years ; as *L. albus*, L., the *white-flowered* lupine ; *L. hirsutus*, L., the rough-leaved with *blue flowers ; L. roseus*, L., the *red-flowered ;* and *L. luteus*, L., the *yellow.*

Phaseolus. L. 15. 10.

P. trilobus. Mx. Bean Vine. Stem prostrate, twining, somewhat hairy and scabrous ; 2 – 3-lobed ovate leafets ; peduncles bear a head of flowers ; banner spreading, reddish-white, keel slightly twisted, and tipped with purple ; legumes linear ; blossoms in July ; South Boston. Woods. Stamens diadelphous. Used by Indian doctors as a cooling, sedative, antibilious tonic. *Lindley.*

Several species of Phaseolus are cultivated for the beans, and are of great consequence.

P. nanus. L. Bush-bean. Several varieties. The small white field-bean is a great favorite.

P. vulgaris. L. Pole-bean. Many varieties, of which the kidney-bean is fine.

P. lunatus. L. Lima-bean. A very rich seed, requiring long and warm summers, and favorable exposure, to ripen.

P. multiflorus. L. Scarlet Pole-bean. Has a splendid appearance in flower.

PISUM. L. 15. 10.

Segments of calyx leafy, 2 upper shorter; stamens 9 in one set, and 1 in the other; standard large, reflexed; style compressed, villous above; legume compressed, not winged; seeds round, many.

P. maritimum. L. Sea Pea. Found on marshes about salt water in the vicinity of Boston, and described by Dr. Bigelow as a Lathyrus; it is probably the above plant of Linnæus. Stem 4-sided, compressed, glaucous; leaves pinnate, with 5 – 8 ovate or rounded leafets, with arrow-shaped stipules; flowers 6 – 8, in a raceme, showy, blue and purple; legumes oblong, with globular seeds; blossoms in May to July.

P. sativum. L. Common Pea. A great many varieties are cultivated; some of those in the gardens are rich and luscious; the field-pea is an important article as the food of hogs, and in the composition of provender for horses, cattle, &c. The seeds of more than twenty varieties are sold in some of the seed stores.

LATHYRUS. L. 15. 10.

L. palustris. L. Marsh Wild Pea. Stem lax, winged, smooth, supported by grass or other plants, with pinnate leaves in 3 pairs of leafets, oblong, mucronate; peduncles long, bearing a few purple flowers; blossoms in June, in wet meadows or low grounds, in the vicinity of Boston. *Big.*

L. odoratus. L. Sweet Pea. Cultivated for its beauty and odor.

Other species are not uncommon in gardens.

VICIA. L. 15. 10.

V. cracca. L. Tufted Vetch. Has a stem slightly pubescent, branching, square, slender, with pinnate leaves of many pairs of leafets, oblong and mucronate; the peduncles bear long,

crowded, recurved racemes of small, pale-purple, drooping flowers; blossoms in July, in meadows, and along fences. Malden, Cambridge. *Big.* A native of England.

V. sativa. L. Common Vetch. Tare. This is the common *tare* of wheat fields; resembles a pea, but is more slender, and its leaves are narrower, lanceolate, and in 5 or 6 pairs of pinnate leafets; valves of the legume twist about each other in a peculiar manner as the seeds fall out. Probably introduced. This is often supposed to be the *tare* of the Bible, but the evidence is rather doubtful. Native of Britain.

V. pusilla. Willd. Slender Vetch. A very slender plant, with minute bluish-white flowers, on a square stem, with linear, very obtuse and small leafets; blooms in July; South Boston, along fences. *Big.* A native of Britain.

V. faba. L. Garden Bean, Windsor Bean. With an erect, many-flowered, strong stem, supporting oval and entire leafets of ternate leaves. Introduced from Egypt; a great many varieties are cultivated.

Tephrosia. L. 16. 10.

T. virginica. Ph. Goat's Rue. Stem a foot high, erect, round, with 8–12 pairs of oval-oblong pinnate leafets, and a terminal odd one; variegated, handsome flowers, in a short terminal raceme; legumes falcate, compressed, linear, many-seeded; grows in dry sandy woods, or barrens, and blooms in June. The whole plant is villous, or pale downy, and the root is slender, tough, and long, and popularly called *catgut.* *Big.* Appears to be spread widely over the United States and Canada. A very beautiful plant, well deserving of cultivation.

Dolichos. L. 16. 10.

D. pruriens. L. Cowitch or Cowage. Rarely cultivated, though it is sometimes seen in gardens; does not reach maturity in Berkshire County, although the *irritating* hairs on the pods, by which it is useful in certain diseases, are pretty fully grown.

TRIFOLIUM. L. 16. 10. Clover.

Some cultivated species, of great consequence in agriculture, are well known, and fully naturalized. *Trifolium* means *three-leafed*, a general character of the species.

T. pratense. L. Red Clover. Originally from Britain.

T. repens. L. White Clover. Originally from Britain.

T. arvense. L. Hare's Foot, Rabbit Foot. Grows on dry, hard soil; small, pubescent.

T. procumbens. L. Yellow Clover. Has yellow flowers, on a spreading stem 3–6 inches high; probably introduced, and not very widely extended.

T. agrarium. L. Woods Clover. Bears small yellow flowers on long peduncles, with leaves nearly sessile; woods and fields; blossoms in June.

A species, sometimes called *Russia Clover*, is a fine border grass, and may prove valuable.

T. officinale. L. Melilot. The yellow flowered, and the white, both finely scented, are often cultivated in gardens. The white grows naturally along the borders of the marsh in South Boston, *Big.*, and is sparingly naturalized in some other places. It is said to make good hay for horses.

The usefulness of the *red clover* for hay, and of the *white* for pasturage, is too great to be more than alluded to.

T. incarnatum. W. Italian Clover, is proposed for cultivation, as a valuable plant. Grows about 2 feet high, with roundish ovate crenate leaves, and an oblong villous spike of flowers. It requires to be cut early for hay. It has been already used as a grass for borders. This species is said to be a native of Italy. *Loudon.*

T. medium. L. Zigzag Clover. Distinguished by its zig-zag stem; has been found by Mr. Oakes, naturalized on hills in Danvers.

LESPEDEZA. Mx. 16. 10.

Was named in honor of Lespedez, governor of Florida, who protected Michaux in his botanical researches. *Loudon.* The plants are of little consequence either for use or beauty; belong generally to North America. Eight species of the dozen, are credited to this State; grow chiefly in open woods or hedges.

L. capitata. Mx. Bush Clover. Has a soft-hairy, and very leafy stem, about 2 feet high; ternate hairy leaves, oblong and mucronate; flowers in rather clustered or head-like racemes; somewhat woody; blossoms in August and September.

L. polystachya. Mx. Hairy Bush Clover. Is rather more woody, more hairy, with ternate leaves, roundish, and racemes of flowers, axillary, exceeding the leaves in the length of their hairy foot-stalks; September; woods.

L. angustifolia. Ell. Has been found by T. A. Greene at Plymouth, in sandy woods, 3–4 feet high, with very narrow leafets, villous below.

L. prostrata. Muh. Trailing Clover.

L. procumbens. Mx. Running Bush Clover. Has a slender, pubescent stem, 2–3 feet long, and purple flowers in rather long racemes, and ternate, roundish leafets; beautiful; blossoms in August.

L. sessiliflora. Mx. Has ovate, reticulated legumes, and an erect, simple stem, 2 feet high, and very narrow leafets, with violet-colored flowers; August; sandy or dry woods.

L. violacea. Pers. Is a handsome species, with violet flowers, mostly in pairs, numerous, in racemes somewhat umbel-like; stem long and slender; dry woods; flowers in August.

L. reticulata. Nutt. Different from *L. reticulata*, Pers., which is *L. sessiliflora* above ; stem simple, erect, stiff, with oblong-linear leafets ; blossoms in August.

Hedysarum. L. 16. 10.

Named by Linnæus from the sweet odor of some of the flowers. It was formerly a more extensive genus, and embraced most of the species of the preceding Lespedeza ; it contains now about 50 species, of which near 20 are found in this country, and 11 are credited to this Commonwealth. In general, the plants are of little importance. In appearance, they are not very beautiful, and may be called singular. One species is the *Saintfoin* of Europe, considered in France and England as highly valuable in agriculture as *hay*, growing on light and chalky soils, being profitable as a crop on good soils for about ten years. It is to be seen whether this may not be a valuable grass for cultivation in New England, if it can endure the climate.

H. Canadense. L. Bush Trefoil. Stem 3–4 feet high, erect, hairy, with ternate leaves, and oblong-lanceolate leafets ; racemes terminal and axillary, of purple flowers ; joints of the legumes oval, obtuse, hispid ; blooms in July, in dry woods.

H. bracteosum. Mx. Has a stem 3–5 feet high, with ternate leaves, near the middle, having ovate and acute leafets, and a long panicle of flowers.

H. acuminatum. Mx. Has a pubescent stem 3–6 feet high, with a panicle of flowers often 2 feet long, and, along the stem, ternate leaves, with ovate, acuminate, and hairy leafets, and the odd one roundish-rhomboidal ; purple flowers ; blossoms in July.

H. rotundifolium. Mx. Has a prostrate, hirsute stem, with fine-flowered racemes ; in rocky woods.

H. humifusum. Muhl. Is prostrate, but smoother than the preceding, and the leafets less round, or more ovate.

The other 6 species, *ciliare*, N., *cuspidatum*, W., *nudiflorum*, L., *obtusum*, Muhl., *paniculatum*, L., *viridiflorum*, L., resemble these, but scarcely need a particular description. Both *H. bracteosum* and *H. cuspidatum* have a little of that spontaneous motion of the leaves, for which *H. gyrans*, from the Ganges, is so wonderfully distinguished, and for which no cause has yet been discovered. Is it not possible, that this undulating agitation may be owing to the varying temperature or moisture, or both, of slight currents or vibrations of the air? Great sensibility to one or both of these particulars, and especially to that of heat, might produce the agitations of the leaves, sometimes in one part and not in an adjacent one, as well as in parts more remote from each other. Even confinement in a large glass case might not be able to prevent altogether the action of very acute sensibility. This action in our species is very small compared with that of the Indian plant, which is in almost constant agitation over more or less of its leaves.

ORDER 78. URTICEÆ. Nettle Tribe.

Flowers without a corolla, monœcious or diœcious, with a persistent divided calyx, into which the stamens are inserted; ovary superior, simple; fruit a simple dehiscent nut; leaves alternate, often covered with pungent hairs; some are herbaceous.

The fibres of the bark are often strong, and valuable for cordage. Some are narcotic, and stupefying, and poisonous. The plants are spread over all climates and countries; some grow in dry, arid situations, and some in wet forests, and seem to love the shade. It is not a very large family in this country.

Urtica. L. 19. 4. Nettle.

Named from its *burning* stings, as many species have a *stinging* property. *Nettle* has the same origin as *needle*.

U. dioica. L. Common Stinging Nettle. Well known; grows by roadsides in clusters, 2–4 feet high, erect, stiff, with opposite, cordate leaves; flowers minute, and without beauty. The prickles are tubes, which, when pressed or struck upon the

flesh, throw out an acrid liquor, which produces the stinging effects. Some of the Indian species produce far more painful effects than those of this country. Widely spread over Europe.

U. Canadensis. L. Large Stinging Nettle. So strong are the fibres of the bark, that Mr. Whitlow proposed its culture as a substitute for hemp; sometimes grows 6 feet high, large, strong, very hispid, and stinging.

U. urens. L. Dwarf Stinger. A small stinging nettle, less than 2 feet high, with opposite, elliptic leaves, acutely serrate; probably introduced from Europe.

U. procera. Muhl. Not of much consequence.

U. pumila. L. Stingless Nettle. Grows in moist and shady places, often about houses; stem a foot high, round, smooth, fleshy, nearly pellucid, somewhat procumbent, and resembles a long worm; flowers monœcious, in axillary racemes or heads.

Bœhmeria. W. 19. 4.

B. cylindrica. W. Taken from Urtica by Willdenow; stem 2–4 feet high, erect, round, channelled, somewhat hairy, flowers in long, axillary, cylindrical spikes, with leaves on petioles, and 3-nerved; grows about fences in dry or damp soils; blossoms in June to August.

Parietaria. L. 19. 4.

P. Pennsylvanica. Muhl. Pellitory. Stem about a foot high, simple, with oblong-lanceolate leaves, veiny, and with opake dots; flowers in axillary clusters; June, in rocky soils. On Sugar Loaf, Deerfield. *Hitchcock.*

Cannabis. W. 20. 5.

C. sativa. L. Hemp. This plant, of such immense importance for the fibres of its stem, was introduced from Europe, and is partially naturalized. It is of two sorts, one of which is sterile, and dies after fertilizing the flowers of the other kind,

which then increases greatly in size and strength. The only known species.

Humulus. L. 20. 5.

H. lupulus. L. Hop. A well-known plant as cultivated; it seems also to be a native of the country, as the sterile plant has been found in various and very remote situations, and where there is no probability of its having been introduced. The medicinal properties are important. Bigelow's "Medical Botany." The active substance is a peculiar principle, called *lupulin.*

ORDER 88. EUPHORBIACEÆ.

Calyx lobed, inferior, generally with some appendages, and bearing monœcious or diœcious flowers; the fertile flowers have the ovary superior; rarely having compound leaves.

This order includes a host of plants, nearly half of which are found in the equinoctial regions of America, being trees, shrubs, or herbs. They are not found in great numbers at the north; few in Canada. Most of them contain a milky juice, which is generally injurious; the common property is stimulating. Some are emetic, and some so poisonous as to be dangerous as medicines. Roots of some are healthful food.

Only a few species are found in this State, and they are not important.

Euphorbia. L. 19. 12.

Named in honor of Euphorbus, physician to Juba of Mauritania.

E. maculata. L. Spotted Spurge. Stem branching, and spreading close to the ground, with oblong, obtuse, hairy, slightly serrate leaves, and axillary, solitary flowers, small; in light soils, along roads and in fields; blossoms in June.

E. hypericifolia. L. Oval-leafed Spurge. Stem erect, and spreading, a foot or more high, with oval-oblong, serrate, opposite leaves, and terminal corymbs of flowers; rich soils, July.

E. polygonifolia. L. Along the seashore, procumbent,

branching, more full of white juice than the others, succulent; leaves oblong, linear-lanceolate, obtuse; blossoms in July.

E. helioscopia. L. Sun Spurge. An erect round stem, with wedge-shaped or ovate leaves; umbel of 5 rays, each of which is 3-branched, and then dichotomous; involucre leaves under the umbel; blossoms in June, in rich grounds.

ACALYPHA. L. 19. 15.

A. Virginica. L. Three-seeded Mercury. An insignificant plant, growing in dry, sandy soils, and beside roads, about a foot high, erect, pubescent, with very small sterile flowers, having fertile flowers at their base; leaves lanceolate-oblong, serrate; flowers in June to September.

RICINUS. L. 19. 15.

R. communis. L. Castor-oil Bean. This is the plant whose fruit yields the castor-oil, so well known for its medicinal properties. It has been extensively cultivated in some parts of the State for the production of the oil; the crop considered profitable. It is partially naturalized, as it is cultivated as an ornamental plant about gardens. Its large branching glaucous stem, and palmate leaves, peltate, make it a beautiful plant. Its capsules are rough, echinate. The bean in its fresh state is poisonous, and should be kept from the access of children.

POINSETTIA. Graham. 19. 1.

P. pulcherrima. A showy greenhouse plant, introduced from Mexico by the American minister Poinsett. Its great beauty lies in a number of richly-colored, broad-lanceolate, scarlet bractes, from 2 to 5 or 6 inches long, situated just below the inconspicuous flowers.

ORDER 116. RUTACEÆ. THE RUE TRIBE.

Calyx 4 – 5-divided, with equal petals alternating with the divisions of the calyx; definite, hypogynous stamens; ovary superior, divided more or less into 3 – 5 lobes.

Ruta. L. 10. 1.

R. graveolens. L. Rue. The plant so common in gardens, with leaves much divided, and leafets oblong; strong-scented; from the South of Europe. Sudorific, and anthelmintic. Formerly much used.

ORDER 122. GERANIACEÆ. The Geranium Tribe.

Calyx of 5 sepals persistent, somewhat unequal, inclosing 5 petals, rarely 4, having short claws; stamens commonly monodelphous; leaves opposite or alternate.

Astringent and aromatic; unequally diffused over the globe.

Geranium. L. 15. 10.

Named from the Greek word for *crane*, the capsule and beak resembling the *head* of that bird. A very extensive genus.

G. maculatum. L. Crow-foot Geranium, or Crane's Bill. Stem about 2 feet high, erect, hairy, forked or branched, with large, spreading, hairy, somewhat palmate leaves, of 5 – 7 lobes; petals round, purple, handsome; fruit beaked; blooms in May; grows in meadows and fields. A very handsome plant; root astringent; medicinal. Bigelow's "Medical Botany."

G. dissectum. W. Wood Geranium. Stem a foot high, pubescent, with leaves variously cut and divided, and with hairy petioles; peduncles axillary, forked; blooms in June; Medford hills.

G. Robertianum. L. Herb Robert. A small, branching, spreading plant of a reddish appearance, with ternate or quinate, hairy, petioled leaves; flowers small, beautiful, purple, with rounded petals; blooms in May to August, by roadsides and moist hedges. The odor of this plant is strong and offensive.

Many species of Geranium are cultivated for ornament, as they have fine flowers and foliage. Many are beautiful plants for the parlour.

ORDER 123. OXALIDEÆ. Wood Sorrel Tribe.

Calyx of 5 sepals, equal, often slightly cohering at the base, with 5 petals hypogynous and equal; stamens 10, monadelphous more or less, and the 5 inner or opposite the petals longer than the others; 5 filiform styles rising from a 5-angled ovarium, of 5 cells; seeds few; leaves alternate, generally compound, rarely whorled or opposite.

This order much resembles the preceding, and was taken from it; embraces a considerable number of plants in the hotter and temperate climes of America, especially, and at the Cape of Good Hope. The plants are not very important. Many have sour leaves; some are astringent; an Oxalis in Columbia bears tubers like a potato. Only one genus in North America, and 4 species in this State.

Oxalis. L. 15. 5. Wood Sorrel.

O. acetosella. L. Grows in open woods, on hills and mountains, covers many parts of Saddle Mount, and makes a beautiful show in the time of flowering. Leaves and flower-stalk grow from the dentate root; leaves ternate and broad, obcordate, beautiful, and delicate; flower-stalk roundish, pubescent, 3 – 6 inches high, bearing one flower, white with reddish veins; blossoms in June to July.

Pure oxalic acid is said to exist in this plant. Taken in quantity, this acid is a deadly poison, but a little of it is pleasant.

O. violacea. L. Sheep Sorrel, Violet Sorrel. A smaller plant, stemless like the other, and with similar leaves, but red or purplish flowers. Blossoms in May, in fields.

O. stricta. L. Upright or Yellow Sorrel. Stem 4 – 8 inches high, with umbelliferous peduncles of yellow flowers, and leaves like the other; grows in sandy fields; blossoms through the summer. Both this species and the preceding probably contain oxalic acid.

O. corniculata. L. Greatly resembles the last, but has a

decumbent stem, bearing umbels of flowers with peduncles shorter than the petioles of the leaves. In Berkshire County; this species has probably been confounded with the preceding.

ORDER 124. TROPÆOLEÆ. Nasturtium Tribe.

A small order, whose species are natives of South America. One is commonly cultivated in our gardens, for use and ornament.

Tropæolum. L. 8. 1.

T. majus. L. Nasturtium. The calyx and corolla both of an orange color; flowers irregular and spurred; a running vine, easily trained, and running several feet, bearing fleshy or leathery sulcate nuts, often pickled. In hot climates it is said to be a shrub; in the colder, is a vine; was carried from Peru to Europe in 1684. Admired for the flowers, leaves, and fruit. It is called *Tropæolum* from the fancied resemblance of its flower to a banner of triumph, — a trophy. If a branch of the plant is placed in a phial of water, it will grow and run for weeks, and sometimes blossom, and may thus be extended over a room. 11 species of this genus are found in South America.

ORDER 126. BALSAMINEÆ. Balsam Tribe.

This order bears irregular, 1-spurred flowers; stamens 5, hypogynous, or under the ovary; fruit capsular, with 5 elastic valves, by which the seeds are thrown about when mature. Some are said to be diuretic, and some emetic. Only 2 species in North America, and few on the globe.

Impatiens. L. 5. 1.

I. pallida. N. Touch-me-not, or Jewel Weed. Stem 2 feet high, branched, smooth, succulent, with rhombic-ovate leaves; spur recurved, on the shorter petal; flowers pale-yellow, 3 – 4 on a solitary peduncle; blossoms in August; grows in wet grounds and damp waste places; its capsule bursts with great elasticity, when ripe and dry, and the plant is hence often called *Snapper*, and, from its pendant flower, *Jewel Weed*.

I. fulva. N. Is smaller, like the other, grows in like situations, has obtuse leaves, and the spurred petal longer than the other ; flowers deep-yellow, but smaller, and crowded with spots.

These two species are of little consequence, and differ very little from each other ; often confounded.

I. balsamina. L. Garden Snapper, or Balsam. Cultivation has produced a great variety of flowers, single, double, and of a great variety of colors, 60 varieties being sometimes found in one garden.

ORDER 129. POLYGALEÆ. The Milkwort Tribe.

Calyx of 5 irregular sepals, 3 being exterior and 2 interior, wing-like and petal-like ; petals 3–5, of which the keel is anterior, and larger, and often crested ; stamens as well as petals hypogynous, 8, usually in one set or tube ; ovary superior, compressed, 2-celled ; leaves generally alternate ; flowers commonly racemose, small, sometimes quite showy.

The leaves are bitter, and the roots usually milky ; among these plants, we find very different properties, stimulant, diuretic, expectorant, cathartic, sudorific, emetic. Not a very numerous order ; and some parts of it are much confined to particular regions. Polygala is more widely spread than the others. Some of the order are herbaceous.

Polygala. L. 16. 6.

P. senega. L. Seneca Snake Root. Grows in the Middle and Southern States, and is in this State cultivated by the Shakers. Stem a foot high, erect, branching, with pale leaves ; flowers whitish, in a terminal spike. Medicinal. Bigelow's "Medical Botany." The root is hard and strong, and is much used in medicine, and contains the peculiar vegetable principle, *senegin.*

P. verticillata. L. Dwarf Snake Root. Stem near a foot high, erect, branched, slender ; leaves whorled or solitary, linear and remote ; flowers small, greenish-white, in spiked racemes ; grows in sandy soils, and blossoms in July.

P. sanguinea. L. Much like the preceding, but its flowers are dark-red, and stem slightly fastigiate, branched ; July, in dry soils ; said to have the same properties as *P. senega ;* is a smaller plant.

P. cruciata. N. Has greenish-purple flowers.

P. polygama. Walt. Has sessile purple flowers ; medicinal. Bigelow's "Medical Botany."

P. paucifolia. W. Flowering Winter-green. Stem 3–4 inches high, leafy ; flowers large, purple, crested on the keel beautifully ; leaves ovate, acute, smooth ; blossoms in May and June, in woods. This is a small but beautiful plant, with large flowers.

ORDER 130. VIOLACEÆ. The Violet Tribe.

Calyx of 5 persistent sepals, as many petals equal or unequal, inferior ; 5 stamens rising from below the ovary, which is 1-celled and usually many-seeded ; leaves simple, usually alternate ; some plants of the order are herbaceous. Only one genus is found in this State.

Viola. L. 5. 1. Violet.

Of the proper violet, there are about 50 species, nearly equally divided between North America and Europe. The South American species are considerably different, and more shrubby. Of the 20 species enumerated as belonging to this country, by Mr. Nuttall, 18 are found in this Commonwealth. They are distinguished as violets which have *stems*, and violets which are *stemless ;* usually beautiful plants, or having beautiful, peculiar flowers. They have little use, but are ornamental. The roots of most violets are said to be emetic. *Lindley.* Of this genus, the anthers are connivent and cohering, so as to resemble united filaments, but in the maturity of the anthers, they easily separate into the 5. Many of the species bear flowers without any petals, in midsummer, as remarked by Nuttall.

Of the stemless violets are the following :

V. pedata. L. Bird-foot Violet. Flower-stem or scape 3 – 5 inches high, several from one root ; leaves radical, pedate, or bird-foot-like, 5 – 7-parted, smoothish, the divisions being linear-lanceolate ; stigma large, compressed, truncate, and perforate at the apex ; blossoms in May, grows in woods and dry soils ; flowers large and blue. Abounds in the towns on Connecticut River, and in the eastern towns, and is becoming useful for its medicinal virtues. *Dr. Partridge*, of Stockbridge.

V. cucullata. Ait. Common Field Violet. A variable species, in its leaves and pubescence, common in wet fields or meadows ; has large blue flowers, more or less variegated, on radical stems ; 3 – 6 inches high ; leaves turned in at their base so as to resemble a monk's cowl, and hence its technical name ; April and May.

V. palmata. L. Hand Violet. Receives its name from the leaves being lobed and cut so as to resemble the shape of the hand ; of which some are certainly finely palmate ; varying as the leaves do, they seem too far removed from the preceding to be only a variety, as some have thought. Grows in wet grounds ; blossoms in May ; flowers middle-sized, blue.

V. primulifolia. L. Leaves smooth, oblong-ovate, partially heart-shaped and obtusish, pubescent on the nerves beneath ; petals obtuse, and the 2 side ones slightly bearded ; flowers white and odorous, with long floral leaves ; wet grounds ; May. Found lately in the eastern part of the State. *E. Tuckerman, Jr.*

V. ovata. N. Grows on dry, sandy hills or fields, very close to the ground, having bright blue flowers on short stems, with flat ovate, subcordate, crenate leaves ; whole plant pubescent ; May.

V. villosa. Walt. Very pubescent, with kidney-form, cordate leaves, thick and flat on the ground ; like the preceding ; May, on dry hills.

V. rotundifolia. Mx. Ground Violet. Has large, broad-ovate and cordate, thick leaves, of a bright-green, with yellow flowers on a very short stem, often scarcely raising them above the leaves of woods ; an early species, blooms in April.

V. acuta. Big. Has ovate, smooth, crenate leaves, rather obtuse ; petals ovate, acute, white, with the odd petal purple at base ; very small ; April and May, in moist grounds. *Big.* Boston and Amherst.

There are 3 other stemless species, *sagittata*, Ait., *lanceolata*, L., *blanda*, W., of even less consequence.

Of the caulescent, or having a stem, are the following :

V. Canadensis. L. Woods Violet. Stem a foot or more high, erect, with broad-cordate, serrate, acuminate leaves, slightly pubescent along the nerves ; spur short ; flowers large, blue, pale inside ; grows in woods and fields ; May.

V. pubescens. Ait. Large Yellow Woods Violet. Stem towards a foot high, erect, with broad-ovate, cordate, toothed leaves ; whole plant villous-pubescent ; middle-sized yellow flowers ; woods ; May.

V. rostrata. Muhl. Beaked Violet. Stem 4 – 6 inches high, erect, diffuse ; leaves smooth ; cordate, acute, serrate ; large pale-blue flowers, with a long spur ; hills and woods ; May.

V. tricolor. L. Garden Violet. Is the species commonly cultivated in gardens, so beautiful and so various in its 3-colored flowers ; introduced from England. When propagated by cuttings or from seed in very rich soil, its flowers increase in size, and have far more splendid colors.

V. odorata. L. Sweet-scented Violet. A stemless species, with creeping scions ; stems smoothish ; calyx obtuse ; distinguished for its fine odor, its early flowers, and variously colored petals ; many varieties have risen from cultivation ; a native of the woods and hedges of Europe, far less common than the preceding in our gardens.

ORDER 131. PASSIFLOREÆ. The Passion Flower Tribe.

Calyx of 5 sepals, and corolla of 5 petals on the calyx, and without the filamentose or annular processes which rise from the throat of the calyx ; stamens 5, monadelphous, surrounding the stalk which supports the superior ovary ; styles 3, club-form, with a dilated stigma ; usually climbing ; leaves alternate and stipulate. The anthers, movable on their filaments, thus bring the pollen in contact with the stigma.

The flowers are often very beautiful, and the whole plant also ; some bear fruit which is sourish, pleasant, and healthful. Generally the properties are of little value.

Passiflora. L. 15. 5. Passion Flower.

Two species are often cultivated in gardens.

P. cærulea. W. Blue-flowered, from Brazil.

P. alata. W. Wing-stemmed, from the West Indies.

Two are natives of the United States from Pennsylvania to Florida ; about 50 species are found in tropical America ; one in Norfolk Island, and one in New Holland ; not one in the eastern continent.

ORDER 134. CISTINEÆ. The Rock Rose Tribe.

This order was united with Violaceæ, from which it much differs, and some of the genera greatly in appearance, which are yet retained in this order by Lindley. Only 3 genera found in this country and State, and only one of these herbaceous.

Calyx of 5 persistent unequal sepals continuous with the flower-stalk, containing 5 fugitive, hypogynous petals ; stamens indefinite ; ovary superior ; flowers often in unilateral racemes. Chiefly inhabit South of Europe, North of Africa, and South America.

Cistus, from which the order is named, and Hudsonia, will be described under the shrubs.

Lechea. L. 3. 3. Pin Weed.

Named in honor of Lecheo, Professor of Natural History at Abo ; small insignificant plants, and natives of North America.

L. major. L. Fall Pin Weed. Stem 1 – 2 feet high, erect, hairy, stiff, brittle, purple, with oval leaves downy, and pale beneath, and small obscure flowers, and producing capsules as large as a pin's head ; blossoms in July, on rocks or dry grounds.

L. minor. L. Low Pin Weed. Stem 8 – 12 inches high, erect, branched, smoothish, with linear-lanceolate leaves, rolled back at the margin ; flowers minute, producing capsules smaller than the preceding ; July ; barren fields.

L. racemulosa. Mx. Branching Pin Weed. Whole plant about the size of the other, but more branched in proportion, and covered with a close pubescence ; leaves linear ; July ; dry fields.

L. thymifolia. Ph. Woolly Pin Weed. A species found further south, but lately found in the eastern part of our State. *E. Tuckerman, Jr.* Stem a foot high, erect, with linear, acute leaves ; branches short, with a leafy long panicle of very small flowers ; whole plant whitish, villous ; sandy places ; July.

ORDER 136. SARRACENIEÆ.

Calyx of 5 persistent sepals, and often an involucre of 3 leaves on the outside ; 5 hypogynous, concave petals with claws ; stamens indefinite ; ovary superior, 5-celled, with a single style, and a dilated peltate, 5-angled stigma ; leaves radical, with a hollow, urn-shaped petiole, and an articulated lid over it ; flower-stalk or scape bears one large flower.

Properties of no consequence. Plants confined to marshes or wet places of North America ; one genus.

Sarracenia. L. 12. 1.

S. purpurea. L. Side-saddle Flower. This is a curious plant in respect to its leaves, and beautiful for its flowers ; has its name from the resemblance in shape and position of its curved and hollow leaf, to the horn of a *side-saddle*. The cup-leaf may contain nearly a gill of water ; is often half full, and frequently has many insects drowned in it ; flower large, and reddish, with the peltate stigma spread like an umbrella over the stamens ; blossoms in June ; scape 1 – 2 feet high. Named after Dr. Sarrazin of Quebec.

Only 3 other species are known. This genus has been removed from the order it was formerly placed in, and seems to be made a distinct order, because its affinities or relations are not understood. A kind of spider has been seen to deposit its half-killed prey in the cup-leaf.

ORDER 137. DROSERACEÆ. The Sundew Tribe.

Calyx of 5 equal persistent sepals, and 5 hypogynous petals ; stamens once, twice, thrice, &c. as many as the petals ; ovary superior, single, having 3 – 5 styles ; delicate plants, often glandular.

Some of the order are said to be poisonous, acrid, or acid ; widely spread over the world.

Drosera. L. 5. 5.

Named from the Greek word for *dew*, from the dew-like glands on its leaves.

D. rotundifolia. L. Sundew. Flowers on a leafless stem or scape, 4 – 8 inches high, in a terminal raceme ; leaves radical, petiolate, round, flattish, covered above and on the margin with crimson, glandular hairs ; blossoms in July ; grows in wet, boggy, or marshy places ; common in England and this country.

The leaves appear as if covered with drops of *dew*, and present a beautiful appearance in the sun. Acrid and caustic plant ; curdles milk ; removes warts and corns, and takes away freckles and sunburn. *Loudon.*

D. longifolia. L. Long-leafed Sundew. A smaller and more delicate plant, bearing flowers on a scape 2 – 4 inches long, and bearing obovate leaves, crenate, tapering into a long petiole ; blossoms in July, in swamps ; common in Britain and here.

D. tenuifolia. Muhl. Slender-leafed. Has slender, almost filiform leaves, 6 – 10 inches long, with flowers purple, on a scape longer than the leaves ; August, in swamps ; abundant along the borders of ponds at Plymouth, *Big.*, where all the three species are found growing in company.

ORDER 139. LINEÆ. The Flax Tribe.

Persistent calyx of 3 – 4 – 5 sepals, and same number of petals and stamens, all hypogynous ; flowers rather beautiful, but fugacious. Only one genus in this country, containing the species of our well-known Flax, which was introduced from England, and is scarcely naturalized, and a wild species, a native of the United States. Distinguished by the tenacity of the fibre, and the mucilage of the seeds ; diuretic.

Linum. L. 5. 5.

Named from the Greek word, from which we have our word *line*, on account of the use of the fibre from the remotest ages of society.

L. Virginianum. L. Wild or Virginian Flax. A weed of hills and fields, growing 1 – 2 feet high, erect, smooth, slender, bearing small yellow flowers in dichotomous panicles ; July.

L. usitatissimum. L. Flax. Well named by Linnæus from its great use and importance, in which no similar article can be a rival, unless it may be wool, cotton, and silk, and with which, for a long period in Europe, no like article, except wool, could compete.

Flax requires a deep, rich, loamy soil, for its most successful growth. The improved process for separating the fibre from the inner part, is by drying and breaking the stem on a machine, without

rotting it, either in water, or on the grass by dew and rain. In this method, pursued in Britain, more seed and a much stronger fibre are obtained, and the remaining part is used for the food of cattle or horses. The fibre can be whitened afterwards, and left much stronger than by the former method.

When flax is rotted in ponds of water, by sinking it several bundles in thickness upon each other, the water is charged with deleterious matter so as to kill fishes in the stream below, and to render the adjacent country unhealthy.

The seed of flax is exceedingly important for its oil, so necessary in the process of painting, and affording a material relatively abundant, cheap, and easy of access. It is boiled with litharge, or oxyde of lead, for the purpose of changing it into an oil that will readily dry; the litharge destroying or changing the nature of the mucilage or gummy part of the seed.

The seed is also valuable for its medicinal character; emollient, diuretic.

The use of the pressed seed of flax after the oil is extracted, as food for horses and cattle, is well known.

L. perenne. L. Common to Europe and Missouri, may be used to some extent like the preceding.

Most of the 39 species of this genus are found in Europe, and are far inferior to common Flax for useful purposes. 5 species grow in the United States, and 3 are indigenous.

ORDER 140. CARYOPHYLLEÆ. The Chickweed Tribe.

Calyx 4 or 5 parted, or of 4 or 5 sepals, persistent, and petals of like number, with claws, inserted under the ovary, not always present; twice as many stamens as petals, sometimes monadelphous; ovary superior, on a pedicle, with 2 – 5 stigmas; capsule 2 – 5 valved; leaves entire and opposite, sometimes connate. The order is named from a splendid and variable species of Dianthus, the *Carnation* Pink.

A few of this order bear beautiful flowers; many are weeds; some are saponaceous; one is said to be anthelmintic, and one is

used for food ; generally of little use, but numerous, and widely spread over the temperate and colder regions, forming $\frac{1}{7\frac{1}{2}}$ of the flowering plants of North America, $\frac{1}{17}$ of Lapland, $\frac{1}{22}$ of France. *Lindley.* The order contains fourteen genera, and a large number of species, in North America, and is distinguished commonly into two obvious divisions, of no great consequence in a popular view of plants, but preserved here for convenience.

1. The sepals united in a tube ; *Sileneæ*, from one of the principal genera.

Dianthus. L. 10. 2. Pink.

So named from the Greek, *flower of Jove*, to express the great beauty and fragrance of the flower, especially of the first species.

D. caryophyllus. L. Carnation. This is found only in flower-gardens, being an exotic from the south side of the Alps. They have been so long cultivated in Europe, and are such favorites among all lovers of flowers, that 400 varieties existed more than a century ago, and as many are found now. They are divided into three classes ; *Flakes*, which have only two colors and stripes large and deep ; *Bizarres* (French, *odd*, *irregular*), variegated with three colors in irregular spots and stripes ; *Picotées* (French, *prickled* or *spotted*), which have a white ground, spotted with scarlet, red, purple, or other colors. The last have the smallest flowers, or smaller than common carnations, and distinguished by their serrated petals ; also more hardy. Though 5 petals are the due number in this genus, in the Carnations the flowers have double or triple that number, and become very large by cultivation. *Loudon.*

D. armeria. L. Red Pink. A native of England, and the chief pink cultivated a few years ago in the western part of the State. In a few places it appears to be naturalized.

D. Chinensis. L. China Pink. A native of China ; has reddish and whitish flowers, with toothed petals and linear scales.

D. plumarius. L. Feathered Pink. Named from its many-cleft petals ; is common to Europe, whence we received it ; glaucous ; throat of the corolla hairy. The *Pheasant's Eye* is of this species, of which 300 varieties are cultivated about Paisley. *Loudon.*

D. barbatus. L. Sweet William. From Germany ; bears red or whitish and often greatly variegated flowers, in tufts or fascicles, with scales as long as the tube of the corolla. Cultivation is making this a very beautiful species, of great variety and mixture of colors.

There are reckoned 41 species of this genus ; only a few are beautiful. The carnation and pink have been called the florist's flower. *Loudon.*

Lychnis. L. 10. 5.

L. chalcedonica. L. Scarlet Lychnis or Campion. A native of Russia, cultivated for its beauty ; the border of the petal somewhat 2-cleft, or deeply emarginate ; flowers fascicled, level-topped ; rather rough-leafed.

One or two species more are said to be cultivated. One small one is a native of Labrador. The cottony leaves of some species have been used as wicks for lamps ; hence the name, Lychnis, from the Greek word for *lamp.*

Saponaria. L. 10. 2. Soapwort.

S. officinalis. L., and *S. vaccaria,* L., have wandered from the gardens into the fields, and are naturalized. In Berkshire County, the former bears large double flowers.

The mucilaginous sap of the leaves is said to have a soap-like power ; hence the name. *S. officinalis* is bitter, and was used to cure the itch. *Loudon.*

Agrostemma. L. 10. 5.

Named from the Greek, *crown of the field,* on account of the beauty of the flowers ; only four species, and all natives of Europe. Tubular calyx, 5-sided.

A. githago. L. Cockle. A well-known weed of wheat fields, hairy, and bearing fine rose-colored flowers, and often called *Rose Campion;* introduced; scarcely naturalized; propagated with the wheat.

The name *githago*, is from the resemblance of the seeds to *git* or *gith*, aromatic grains supposed of Nigella *sativa*, L., used in cookery. The black seeds greatly injure the flour of wheat.

A. coronaria. L. Mullein Pink. Named from its woolly leaves, bearing white or red flowers, sometimes double; a plant desired from its singular appearance; a native of Italy.

Cucubalus. L. 10. 3.

The name signifies a bad subject; as the seeds of *C. baccifer*, a native of England, are very poisonous, it is named *evil weed. Loudon.*

C. behen. L. Bladder Campion. Formerly a Silene, native of Crete, about fences and roads; stem a foot or two high, smooth, paniculate, with white, spreading, nodding flowers, and with spatulate, radical leaves, and opposite, ovate, acute, entire, stem-leaves; calyx inflated or bladder-like, an obvious and striking character; introduced; substitute for asparagus and green peas, according to Loudon.

C. stellatus. L. Star Campion, is a native of this country and State; stem 2 – 4 feet high, erect, branching, pubescent, with whorled, lanceolate leaves in fours; white, paniculate flowers; petals about 4-cleft; July; woods; calyx inflated and pubescent.

Silene. L. 10. 3. Catchfly.

More than 70 species are enumerated under this genus, and are generally plants of little use or beauty; and, as many of them are covered with a viscid, offensive matter, the genus was named after the dirty and drunken heathen deity, Silenus. 3 or 4 species are peculiar to this country, and a few others are the same as the European; only 2 species are found in this Commonwealth.

S. antirrhina. L. Sleepy or Snap-dragon Catchfly. As the flowers are not expanded by day, and the plant resembles a species of Antirrhinum, the popular name is obvious; grows on dry hills, and blossoms in June. Stem 1 – 2 feet high, erect, smooth, slender in its branches and peduncles; leaves lanceolate, acute; flowers whitish, small, petals obcordate, crowned at the top of the claw of the petal.

S. Pennsylvanica. Mx. Wild Pink. Viscidly pubescent; stems 8 – 12 inches high, numerous; radical leaves wedge-form, and stem-leaves long-linear; panicles somewhat trichotomous; petals bright-purple; May; light soils, in fields and woods.

S. nocturna. L. A native of Europe; has lately been found by Dr. Harris, springing up without cultivation, in Cambridge.

S. armeria, L., Garden Catchfly, and *S. conica*, L., Garden Catchfly, both from England, and perhaps some others, are cultivated for ornament. *S. armeria* is very common in our gardens, and often used for border flowers, as it blossoms for many days, and has rather handsome foliage.

2. Sepals distinct or cohering only at the base; ALSINEÆ, from a principal genus.

STELLARIA. L. 10. 3.

Named from its star-form or stellate flower.

S. media. Sm. Formerly Alsine *media*, L., Chickweed. Stem procumbent, spreading; leaves ovate or lanceolate, smooth; peduncles axillary and terminal, 1-flowered; petals 5, deeply cleft so as to appear like 10; stamens often 5; about gardens and houses; blossoms from March to November. Naturalized.

S. longifolia. Muhl. Long-leafed Star-grass, and

S. lanceolata. Torrey. Are grass-like plants, in moist woods and swamps; of little consideration.

Cerastium. L. 10. 5.

Named from the Greek for *horn*, on account of the *horn-like* form of the capsule of many of the species. Few, if any, are indigenous to this country.

C. vulgatum. L. Mouse-ear Chickweed. A pale-green plant, partly procumbent, viscid-pubescent; leaves ovate, obtuse, pubescent or hirsute; flowers dichotomous, partially umbelled; petals white, emarginate; from May to August, in gardens and fields; introduced from Britain.

C. viscosum. L. A more viscid, but similar plant.

C. semidecandrum. L. May be only a variety of the last; on dry hills; both from Britain.

C. arvense. L. Field Chickweed. Rather smaller than the preceding species, ascending, slender, with crowded leaves at the base; flowers large, white, 2 or 3 on terminal pedicels; blossoms in May and June, in fields and on rocky hills; a native also of Britain.

C. tenuifolium. Ph. A variety of the last, in all probability, and grows in similar places.

C. connatum, Beck; which is *C. hirsutum* Muhl. Credited with some doubt to this State; very hairy, diffuse; leaves obovate; flowers in dense clusters, and white, with a procumbent stem; May. Probably a variety of *C. vulgatum.*

C. oblongifolium. Torrey. A larger plant, cespitose, procumbent, pubescent, erect, terete, with oblong-lanceolate leaves; petals obovate, bifid; flowers terminal, few, on a dichotomous panicle; mountains of Massachusetts; blossoms in June.

The last appears to be indigenous; all of little consequence, except as yielding seed for the food of small birds.

Sagina. L. 4. 3.

S. procumbens. L. Pearlwort. Stem 2 – 4 inches high, smooth, branched, procumbent, with linear leaves, mucronate, and small white flowers with very short petals or none ; along streams ; July. Native of Britain.

Sagina is so called from its *nourishing* power, as some of the plants are valuable food for sheep. The above species is a mere weed and troublesome. *Loudon.*

Mollugo. L. 3. 3.

M. verticillata. L. Carpet Weed. This is a prostrate, spreading weed, with a dichotomous stem, whorled leaves, and small white flowers on axillary peduncles ; in fields, July ; a native of this country.

Spergula. L. 10. 5.

S. arvensis. L. Corn Spurry. Stem 6 – 12 inches high, with swelling joints, and narrow, linear, whorled leaves, and with white flowers in a dichotomous panicle ; August, in sandy fields. Introduced from Britain. Supposed to receive its name from the Latin word *to scatter*, because it scatters its seeds widely and rapidly. In Scotland, this species is called *yarr*, and in England, *pickpurse*, a name which shows its character. In Germany it is sown in cornfields to give food for sheep in winter, for which it is excellent food, and also for cows, and for hens, green or as hay ; yields most nourishing fodder for its bulk, and gives the best flavored milk and butter. It is not likely to be cultivated here for the same reason that it is not in England, viz., there are better plants for the same soils. *Loudon.*

Arenaria. L. 10. 3.

Named from *arena*, sand, in which most of its species are found ; all are plants of little consequence. About 50 species are described ; only 8 are credited to the Eastern States.

A. serpyllifolia. L. Stem 3 – 8 inches long, mostly decumbent, diffuse and dichotomous, with ovate and acute, sessile leaves,

and solitary, axillary, and terminal flowers ; petals purplish, contract within the calyx towards mid-day ; roadsides ; June. A native of Britain ; naturalized.

A. lateriflora. L. Has a more erect stem, 4 – 8 inches high, with white flowers ; wet, shaded places, June ; a native of Britain, and probably of our country also.

A. rubra. L. Common Sandwort, has small delicate red flowers on prostrate, branching stems ; roads ; July.

A. marina. Sm. Sea Sandwort ; more succulent and fleshy than the last. Salt marshes ; July ; often thought to be a variety of *S. rubra.*

A. peploides. L. Stem 8 – 12 inches high, smooth, fleshy, pellucid, dichotomous ; leaves half-clasping, ovate, acute, fleshy, opposite ; flowers nearly sessile, axillary, with white membranaceous petals ; blossoms in May and June ; grows in large collections, along the seashore sands ; Plumb Island, near Newburyport, *Big.*, and some other places along the coast.

ORDER 143. ELATINEÆ.

Only one species of this order is credited to North America, viz. Crypta *minima*, Nutt. 2. 2. This plant has been found on the Hudson near Albany, and along ponds about New Haven, Connecticut, and widely over the country. It is difficult to detect on account of its minuteness, as it lies flat on the ground, and sends up branches only an inch or half inch high, with very minute axillary flowers. It has lately been detected by the sides of ponds in Plymouth County. Properties of the order unknown. Elatine *triandra*, W., lately found in the eastern part of the State, is probably the plant described by Nuttall.

ORDER 144. PORTULACEÆ. The Purslane Tribe.

Calyx of 2 sepals, rarely 3 or 5, united at the base ; petals 5, rarely 3, 4, or 6, distinct, or in a short tube, or none ; stamens

rising from the base of the calyx, with distinct filaments; ovary superior, and capsule 1-celled; leaves commonly alternate, without stipules; flowers axillary or terminal.

Tasteless, inodorous, somewhat mucilaginous, of a dull green color; of little use as a family; are found at the Cape of Good Hope in most abundance; only a few in this country.

Portulaca. L. 12. 1.

P. oleracea. Purslane. A well-known plant of gardens and fields, succulent, fleshy, having a prostrate stem, and flowers on the smaller branches, with yellow petals. Supposed to be introduced from Europe, but indigenous to naked plains of Missouri, according to Mr. Nuttall. Sometimes boiled for greens.

Claytonia. L. 5. 1. Spring Beauty.

Named after Clayton by Gronovius, who received the plants of Virginia collected by Clayton. Within a few years many species have been discovered in North America. Only one species is found in New England. It has been fashionable to blend this in all its varieties under *C. Virginica*, L. Our plant had been called *C. Caroliniana* by Michaux, and afterwards *C. spathulæfolia* by Pursh, and a marked variety of *C. Virginica* by others. I have never seen the long, linear, narrow-leafed plant, *C. Virginica*, L. at the north; and I was satisfied that ours is very different from that, on receiving a specimen from the south.

C. spathulæfolia. Ph. Has a stem 6 – 10 inches high, nearly erect, often procumbent, with two opposite, fleshy, broad-lanceolate or spatulate leaves, somewhat variable, and with loose-racemed flowers, rose-red, and more or less striped; root fleshy, tuberous, at some distance in the ground; open and moist woods; April. The two species are made distinct by T. and G., "Flora of North America," Part 2, p. 199.

The plant is beautiful, as its name imports, but has no useful properties. *C. perfoliata*, Donn, a native of North America, is said to be a hardy plant, whose foliage is used as *spinage. Loudon.*

ORDER 147. CRASSULACEÆ. The Houseleek Tribe.

Divisions of the calyx 3 – 20, somewhat united at their base, and originating the corolla of separate petals, or monopetalous; stamens once or twice as many as the petals and rising also from the calyx; several hypogynous scales; ovaries as many as the petals; mostly succulent plants; flowers in cymes.

This is a large tribe of plants, of which 133 are found at the Cape of Good Hope, 15 in North America, 52 in Europe, and about 70 more scattered over the earth. Only a few species inhabit this State. The properties are sometimes acrid; many are refrigerant and abstergent; seem not to be of great value.

Penthorum. L. 10. 5.

P. sedoides. L. Virginia Stem Crop. The genus is named from the 5-marked angles of the capsule; and the specific name from its resemblance to Sedum. A plant of no consequence; a native of this country.

Stem a foot or more high, branched and angular above; leaves alternate and lanceolate; flowers white or yellowish, in a terminal 1-sided raceme; wet grounds; July. Plant scarcely succulent.

Sedum. L. 10. 5.

Named from the Latin *to sit*, from the manner of growth upon rocks, as if sitting upon them. *Loudon.* A pretty large genus, having but few species in this country. 5 small seed-vessels with a scale at their base, and the divisions of the calyx often swelled and leafy.

S. Telephium. W. Stone Crop. Stem branching, with flat, alternate, ovate leaves, somewhat acute at both ends; flowers in a fascicled corymb, pale purple; rocks; July; eastern part of the State. This is doubtless the *S. telephioides*, Mx., varieties of the same plant, common to Europe and this country.

Several other species of Sedum are cultivated.

Sempervivum. L. 12. 12.

S. tectorum. L. Houseleek, or Live-for-ever. A well-known plant of the gardens, with thick, fleshy, mucilaginous leaves; sends out runners with bulbs, and rather rarely flowering; native of Britain. The plant is so succulent, that a twig of it will grow, if the end be only stuck fast under the shingles of a roof; hence its generic, specific, and common name. In popular use as an emollient, bruised or not, and a vulnerary.

ORDER 148. FICOIDEÆ. The Fig-Marigold Tribe.

This order contains but few genera, but many species. One species is cultivated. The plants are succulent, polypetalous, with perigynous stamens, and superior ovary. The fruit of some is fig-like, whence the name of the order.

Mesembryanthemum. L. 12. 1.

From the Greek, *mid-day*, because the flowers usually expand at that time. No less than 290 species of this genus have been described, of which many are rather beautiful, some only herbaceous.

M. crytallinum. L. Ice-plant, from Greece; has a nearly prostrate stem, with ovate, acute leaves, appearing as if covered with frost. In gardens.

Only one genus is found in this country, Sesuvium, along the seashore of the Middle and Southern States.

ORDER 150. ILLECEBREÆ.

Calyx of 3 or 4, or oftener 5 sepals, sometimes cohering at the base; petals inserted on the calyx, minute, or none, with perigynous stamens opposite the petals and equal in number; ovary superior; styles 2 or 3; leaves sessile, often fascicled. Properties of no interest. A considerable class, inhabiting the South of Europe, and North of Africa.

QUERIA. L. 5. 1.

Q. Canadensis. L. Forked Chickweed. Stem 6 – 12 inches high, erect or spreading, dichotomous, pubescent, with opposite, lanceolate, smooth leaves ; flowers solitary, very minute, terminal and axillary ; blossoms in July ; dry soil, in fields.

The genus is named from Quer, a Spanish botanist. Some other species are found in this country, but not in this State.

ORDER 151. AMARANTHACEÆ. THE AMARANTH TRIBE.

Calyx 3 or 5 leafed, persistent, hypogynous, without a corolla ; stamens 5, or twice as many, distinct and monadelphous ; ovary superior ; flowers in heads or spikes. A rather numerous family, chiefly in the tropical regions, which contain about 150 species, and about 50 are in other parts of the world ; seem to have few distinguishing and valuable properties ; some are used for pot-herbs, some for their singular flowers and inflorescence, and the long continuance of their blossoms ; a few as medicines.

AMARANTHUS. L. 19. 5. Amaranth.

Named from the Greek, which means *not withering*, as the flowers retain their colors long. About 40 species are described ; only 8 or 10 natives of North America, and still fewer of New England.

A. hybridus. L. A coarse weed about gardens, 2 or 3 feet high, unsightly, with ovate and lanceolate leaves, flowers crowded, small, obscure ; turning reddish in maturity ; blossoms in August. Probably introduced.

A. oleraceus. L. Pot Amaranth. A smaller weed about gardens, with insignificant flowers ; rarely used as a pot-herb.

A. blitum. L. Low Amaranth. Smaller than the others, spreading or prostrate ; supposed to be introduced.

A. pumilus. Nutt. A low plant, somewhat decumbent, diffuse, with ovate leaves, which are obtuse and fleshy ; on Nashawn Island. *T. A. Greene.* *A. retroflexus*, L., has been found in several parts of the country.

In the gardens several species are cultivated, as

A. melancholicus. W. Melancholy, from the East Indies.

A. lividus. W. Lead Amaranth, from North America.

A. tricolor. W. Three-colored Coxcomb, from the East Indies.

A. caudatus. W. Love-lies-bleeding, from the East Indies.

GOMPHRENA. L. 5. 1.

G. globosa. L. Globe Amaranth, or Bachelor's Buttons. Well known for its beautiful heads of red flowers, and easily cultivated as an annual. India. If the heads are picked before maturity, they preserve their beauty for years. *Loudon.*

ORDER 152. SCLERANTHEÆ. THE KNAWEL TRIBE.

Only 2 genera belong to the order. The species grow over Europe, Asia, and North America ; only 3 of Scleranthus are described ; all useless plants ; the name means *hard flower.*

SCLERANTHUS. L. 10. 2.

S. annuus. L. Common Knawel. Stems procumbent, spreading, somewhat pubescent, numerous ; flowers in axillary fascicles, green and very small ; leaves linear, opposite, acute ; July, in sandy fields.

ORDER 153. CHENOPODEÆ. THE GOOSE FOOT TRIBE.

From the Greek, *Goose-Foot*, on account of the resemblance of the leaves of many species to the webbed feet of water birds. The plants have little of interest in their appearance, and their flowers are insignificant.

Calyx persistent, deeply parted, sometimes with divisions united at the base ; corolla none ; stamens on the base of the calyx, and against the divisions which they equal in number ; ovary superior ; fruit membranous, sometimes berry-like ; leaves alternate, sometimes opposite ; flowers small, sometimes polygamous.

This order contains a considerable number of plants ; some highly useful. Many have been used as pot-herbs.

Chenopodium. L. 5. 2.

C. album. L. Pig-weed, or White Goose-Foot. A common weed in gardens and fields ; succulent, and formerly used as a pot-herb.

C. hybridum, L., and *C. rubrum*, L. Often called Goose-Foot ; gardens and waste places.

C. botrys. L. Oak of Jerusalem. A native of this country ; a small, erect, branching, and leafy plant, with scattered clusters of flowers on short branches, giving the whole a spike-form appearance ; of a strong and peculiar odor ; grows on light, sandy soil ; August. Tonic and antispasmodic.

The genus numbers about 40 species, 4 or 5 only being indigenous ; the first three just mentioned, have probably been introduced from Europe. The ashes of our species are used in the manufacture of soda.

Beta. L. 5. 2. Beet.

From the Celtic for *red.*

B. vulgaris. L. The common Beet, white and red. These plants, introduced from the south of Europe, have become necessary as articles of food. The cultivation of the Sugar Beet is no longer problematical. The introduction of an article of such extensive consumption, demanding new and increasing industry and capital, may form an era in the history of our agriculture and prosperity. The extraction of 10 per cent. of sugar from the beet, by the improved method in France, renders it certain, that

the production of sugar from the beet may be profitable even in a land of free labor.

While the beet, carrot, turnip, cabbage, &c., are used for food under various forms, it should be recollected, that they are more difficult of digestion than the farinaceous vegetables, wheat, potato, &c.

B. cicla. W. Scarcity, and Mangel Wurtzel. Too extensively cultivated, as food for cattle, not to be known for the amount of its yield suited to that object ; a native of Portugal. The specific name *cicla*, is said to be a corruption of *sicula*, by which name Catullus called the plant. *Loudon.*

Spinacia. L. 19. 5.

S. oleracea. L. Spinach. Spinage is cultivated to some extent, and as a pot-herb is highly esteemed.

Acnida. L. 20. 5.

A. cannabina. L. Sea Hemp. Grows in marshes about salt water, with a smooth, erect stem, having leafy spikes of barren flowers on one plant, and fertile flowers on another, with leaves ending in a long, obtuse point ; blossoms in August. *Big.* The genus has its name from being *stingless*, and its specific name from its resemblance to the common hemp.

Atriplex. L. 20. 15. Orache.

A. hortensis, L. Is cultivated as spinage, and has become naturalized in some parts of this country ; it is called *mountain spinage ;* from Tartary. More than 30 species are described, though only 5 or 6 are natives of North America, and only half of them are found in this State.

A. patula. L. Spreading Orache. A branched, spreading, herbaceous plant, with spear-form leaves towards the base ; grows in salt marshes.

A. arenaria. Nutt. Grows in sandy places of the coast,

with a reddish stem a foot high, much branched, spreading, and lower leaves cuneate-oval, obtuse.

Blitum. L. 1. 2.

B. capitatum. L. Strawberry Blite. This is a singular plant in its mode of bearing seed ; the flower-cup thickens and reddens, and surrounds the black seed, which finally falls out ; the fruit resembles the strawberry in general appearance. Its name implies the insipidity of the fruit, and the arrangement of the flowers. It is found in the waste places about yards.

Salsola. L. 5. 2. Saltwort.

The botanical and English names explain themselves. Near 40 species have been described, most of which belong to the sea-coast of southern Europe. The plants of this genus are the chief source of soda ; the ashes being employed, as are the ashes of land plants to obtain potash, in the production of soda.

S. kali L. A rough, prickly plant, growing along the sea-shore, of which *S. Caroliniana*, Mx., is probably only a variety growing in similar situations.

S. salsa. Mx. Smooth Saltwort. Destitute of prickles, with fleshy leaves ; in salt marshes. Mr. Nuttall considers this the Chenopodium *maritimum* of Pursh. The only 2 species found in this country are indigenous also to Europe, and both are employed in obtaining the *kelp*, and thence the soda, of commerce.

The extensive use of soda in the manufacture of hard soap and glass, as well as in bleaching and in medicine, shows the great importance of these vegetables.

Salicornia. L. 1. 1.

From words meaning *salt horn*, and often called *Saltwort.* Of 10 or more species, mostly in the South of Europe, only 3 are found along our coast. Sometimes called *glasswort*, from its use in the manufacture of glass.

S. herbacea. L. Common or Marsh Samphire. Grows in

salt marshes, with an erect stem destitute of leaves, and branching with lateral and terminal, narrow spikes.

It is an interesting fact, that this plant should be found at the salt springs along the shore of Lake Onondago, in the interior of New York, 260 miles from the salt water of the ocean.

S. ambigua. Mx. A small plant, found in the vicinity of New Bedford.

S. mucronata. Big. Dwarf Samphire. First described by Dr. Bigelow. It is also erect and leafless, thicker, and more fleshy, but much less than the first species, and is in similar situations.

Dr. Bigelow remarks, that the plants of this genus are used in producing soda, and on the table as pickles.

ORDER 154. PHYTOLACCEÆ. The Poke Tribe.

The only genus of this order, north of Pennsylvania, is Phytolacca, ranked by Jussieu in the preceding order. Because the berries give a fine red juice like lac, this name is given to the genus, and thence to the order. Other species grow in North America, but only one at the North.

P. decandra. L. 10. 10. Poke, or Virginia Poke, or Poke Weed. This is a large, fleshy plant, often 6 feet high, well known about hedges and open woods in dryish soils, rising from a very large root, and bearing large, scattered, and somewhat fleshy leaves; berries of a dark purple, and very juicy; a favorite food of robins and other birds, as they are moving southwards in autumn to their winter quarters. The violent emetic powers of the root are well known; useful in medicine. Bigelow's "Medical Botany." Blossoms in June to August; flowers in large and long racemes, so that the dark red berries are finely arranged for beauty and show.

ORDER 156. POLYGONEÆ. The Buckwheat Tribe.

Calix inferior, divided, sometimes colored so as to resemble a corolla, bearing the stamens at its base ; nut naked or covered by the calyx, commonly triangular ; seed generally farinaceous ; leaves alternate, with stipules round the outside of the petioles ; flowers sometimes only bearing stamens or pistils, often in racemes and beautiful, often coarse and unsightly.

Polygonum. L. 8. 3.

Named from the Greek, *many knees* or *joints*, from the form of the stem. About 70 species have been described, most of which are natives of Europe, and the north part of Asia ; 24 species are credited by Nuttall to North America ; and 17 species are found in this State, some of which have been introduced from the other side of the Atlantic. Some follow man, and make their home around his dwelling.

P. aviculare. L. Knotgrass. Forming a thick carpet about houses, and by its seeds supporting small birds, whence its specific name. Although unlike the grasses, yet, because its stem is jointed or knotted, and it is eaten by cattle, it is called Knotgrass.

P. persicaria. L. Heartease, or Heartspot. About gardens and fields, with a dark and rather heart-shaped spot on most of the leaves.

P. punctatum. Ell. Water-pepper. In moist places, and about rubbish ; it is only a variety, and ought so to be named, of *P. hydropiper*, L. ; it yields a yellow dye, and is strongly diuretic.

P. hydropiperoides. Mx. Occasionally found about Boston. *Big.*

P. sagittatum. L. Prickly or Arrow-shaped Knotweed.

Grows in wet places, with arrow-shaped leaves, and an exceedingly rough stem, with teeth backwards.

P. arifolium. L. Has a stem like the other, but larger and stouter, and with much larger leaves, less distinctly sagittate, and more halberd-shaped ; grows in wet places, and is often associated with *P. Pennsylvanicum*, L., from which it is clearly separated, and yet resembles it.

P. coccineum. Willd. Purple Knotweed. Named from the color of both the leaves and the dense spikes of flowers ; grows on the edges of ponds, with its long, smooth leaves, gracefully floating, greenish above, and purple or reddish below ; common about the ponds of Berkshire County, and also in the vicinity of Boston ; blossoms in July.

P. amphibium. L. Grows more out of the water than the last, and is eradicated with much difficulty from recovered lands.

P. convolvulus. L. Bindweed or Bind-Knotweed. Alternate and heart-shaped leaves ; grows as a twining vine round other plants ; abundant in cultivated fields ; flowers unsightly.

P. cilinode. Mx. Climbing Bindweed. Less common than the other, with deep, heart-shaped leaves, and climbing on and over other plants.

P. scandens. L. Resembles Buckwheat in its flower and fruit, but climbs like the other.

Some other species, *P. articulatum*, L., *lapathifolium*, L., *mite*, Pers., *tenue*, Mx., and *Virginianum*, L., are of still less consequence.

P. fagopyrum. L. Buckwheat, or properly Beechwheat. So called from the close resemblance of its seeds to the seed of the Beech tree, or Fagus ; a native of Asia, partially naturalized in England and this country. The lateness of the season for sowing this seed, viz. about July 4th, its rather prolific character,

the pleasantness of its flower as food for man, and its utility as a component of food for hogs, cattle, or horses, render it an important vegetable. The flowers form a valuable source of honey for bees, though the honey is not so white, nor quite so pleasant, as that obtained from most other flowers. Another variety, requiring a longer time for ripening, is beginning to be introduced.

P. orientale. L. Princess' Feather. Introduced from near Mount Ararat into Europe by Tournefort; is a large and tall exotic, with large broad leaves, and flowers in long and flexuous and pendulous spikes of a bright-reddish color. Very handsome. It is said to be cultivated in the East for the medicinal qualities of the seeds, as well as for its flowers. *Loudon.*

Rumex. L. 6. 3.

About 6 species are found in the State, while only one is very abundant. The leaves have ligules or bands around their base.

R. acetosella. L. Sorrel, or Field Sorrel. This well-known plant appears everywhere over the dry, sandy fields that are neglected or untilled, and also, after the grain is harvested, often in good soils showing its brownish flowers in great abundance, and to the great annoyance of the farmer. The leaves are very distinctly of the form of the ancient spear. The plant contains oxalic acid.

R. crispus. L. Dock. This, with 2 other kindred species, needs few remarks. The root of the yellow dock is often used in the preparation of salves and ointments.

R. pallidus. Big. White Dock. This new species was first described by Dr. Bigelow. It occurs about salt marshes in the vicinity of Boston.

The dock is used sometimes as a pot-herb. The whole number of species is nearly 50, most of which are weeds, and have little value in the arts or for food. Three other species, *acutus*, L., *Britannicus*, L., and *obtusifolius*, L., are found in the State.

RHEUM. L. 9. 3. Rhubarb.

The name of the genus is from Rha, the ancient name of the Volga, on whose banks grows the rhubarb used in medicine.

R. rhaponticum. Willd. Pie-Rhubarb. Shows its origin in the specific name; a native of Thrace, and cultivated for ornament and for use. Its large, long, leaf-stalks, full of juicy acid, are often used to make tarts, at a time when the common materials usually fail.

R. palmatum. L. Rhubarb. Introduced from Asia, and rarely cultivated. The root, so important in medicine, and imported as Chinese, Russian, &c. Rhubarb, is cultivated on the southern declivities of the mountains of Tartary, towards Thibet, and in China.

ORDER 158. NYCTAGINEÆ. THE MARVEL TRIBE.

Called after the genus *Nyctago* of the French, from the Greek *drive* and *night*, because its flowers expand by night, and are closed much of the day. The plants are natives of the warmer parts of the world.

MIRABILIS. L. 5. 1. Noonsleep, or Four o'clock.

M. jalapa. L. From the West Indies, red, white, and yellow flowered; beautiful for gardens; common.

M. dichotoma. W. From Mexico, with sessile and solitary flowers.

M. longiflora. W. From Mexico, with crowded, long flowers, and somewhat villous leaves. The last two not so commonly cultivated as the first, and yet handsome.

The general property of the class is cathartic; but most of the species have little beauty.

ORDER 163. PODOSTEMEÆ.

Only one species is found in North America ; a few are found in South America, and the African Islands. Herbs with floating stems, and capillary or linear leaves irregularly divided, or minute and imbricated. Flowers small, naked, bursting through a spathe, monœcious, without calix or corolla.

Podostemum. L. 19. 2.

P. ceratophyllum. Mx. Threadfoot. Grows on rocks in streams, with a filiform stem, and floating with its pinnate leaves and axillary flowers ; blossoms in July ; near Amherst.

ORDER 164. CALLITRICHINEÆ.

One genus and 3 species make up this order in North America, and 2 of the 3 species are in Massachusetts. The relations of plants of this order are little understood.

Callitriche. L. 1. 2. Water-Star.

C. verna. Muhl. Named from the Greek, *beautiful hair.* It is a small plant. Stem floating, filiform, with small, lanceolate, opposite leaves, spatulate, and obovate, forming star-like tufts at the end of the stems ; fresh water ; blossoms in May to August.

C. linearis, Ph. Seems to be *C. autumnalis*, L., and differs little from the preceding, except in its more linear leaves ; grows in the same situations.

ORDER 165. CERATOPHYLLEÆ.

Only 1 genus and 2 species known in North America. Like the preceding order, the relations are scarcely made out, and the orders become isolated genera.

Ceratophyllum. L. 19. 12.

C. demersum. L. Hornwort. The name means *horn-leaf*,

and the fruit has 3 spines upon it. Stem long and slender, floating, with whorled leaves in eights ; flowers axillary, solitary, very minute ; found in ditches in Europe, and in similar places in Nantucket ; July.

2. *Monopetalous Plants.*

We come now to a subdivision of the plants of this class, which is artificial, and yet very important in ascertaining the plants, and easily distinguishing them. The corolla is monopetalous, or the supposed divisions of the petals cohere into a tube. Only a few of the polypetalous corollas cohere at the base so as to be monopetalous, and form exceptions to this arrangement.

ORDER 173. PYROLACEÆ. The Winter-Green Tribe.

Calyx 5-leafed, inferior, and persistent, with an hypogynous corolla of one petal, regular, 4 or 5-toothed ; stamens hypogynous, double the number of the divisions of the corolla ; ovary superior, 4 or 5-celled, many-seeded ; style one, often declined towards one side ; stems round, scaly ; flowers in terminal racemes, seldom solitary.

The plants love the woods, and abound in the northern temperate zone.

The species of this order seem to have no very distinguishing properties.

Pyrola. L. 10. 1. Winter Green.

A name considered as a diminutive of Pyrus, and the common name, from many of the species being evergreen. Astringent and tonic. The plants, though not very handsome, are singular and interesting ; 7 species are found in the State, and about 12 in North America. Calyx minute, 5-cleft, or 5-parted ; capsule 5-celled, and stigma 5-lobed.

P. rotundifolia. L. Shin Leaf. A native of open woods in a light soil, bearing 2 or 3 roundish leaves at the base, and the

flowers near the summit of a stalk near a foot high ; flowers in July. The leaves are in popular use as a dressing for sores on the legs, as having one side drawing, and the other healing.

P. secunda. L. One-sided Winter Green. Much smaller, and with flowers more 1-sided, but much like the preceding ; grows in woods also ; July.

P. maculata. L. Spotted Winter Green. A handsome plant, with variegated leaves ; woods ; July ; resembles the following.

P. umbellata. L. Prince's Pine. In some sections of the country, this plant is known by the Indian name *Pipsissawa*, or *Sipsissewa.* A handsome evergreen, and, from the brightness of its leaves in the snows, has been called *Chimaphila*, or *lover of winter.*

Stem scarcely a foot high, with thick, leathery, wedge-form leaves along the lower half of the stem, the upper half ending in a few large, greenish-white, and purplish flowers, in a nodding corymb ; blossoms in July. Medicinal. Bigelow's "Medical Botany." A decoction of the plant has been supposed to be a remedy for cancer.

P. uniflora. L. Has a solitary white flower on a small short stem, with roundish leaves ; blossoms in July ; found near Salem, by Mr. Oakes, who has so successfully examined the botany of New England, and especially of this State. It is a native of Britain also, and said, by Sir J. E. Smith, to be "one of the most curious and elegant of British flowers." *Loudon.*

P. asarifolia, Mx. Resembles *P. rotundifolia*, but distinguished from all the species by its large, leathery, reniform leaves.

P. elliptica. Nutt. Seems to approach very near to *P. rotundifolia*, but possibly to be distinguished by its white and odorous flowers and rather elliptic leaves ; July ; dry woods.

Several of the species are certainly but little removed from each other, if they are more than varieties.

Monotropa. L. 10. 1.

As the flowers mostly turn down, or are nodding, the plants are named from the Greek, *to turn one way*. There is no green herbage to them, but they are white, or yellowish, or rather light colored.

M. uniflora. L. Tobacco Pipe; the form of which, and color, it greatly resembles, though its stem is rather short, white, 4 inches high, with small, sessile, and white leaves or scales; flowers single, large, commonly nodding; shady woods; June. Changes to a dark color in drying; is a singular and handsome plant.

M. lanuginosa. Mx. Pine Sap. Resembles the preceding, but its flowers are along the stem, and several, and the stem, 4–6 inches long, is sometimes branched, and always scaly, and somewhat hairy or woolly; is enlarged under ground, and covered with scales, and its numerous radicles descend into the earth. By many the plant is considered a parasytic, deriving nourishment by its roots from the roots of other plants.

ORDER 174. CAMPANULACEÆ. The Bell-Flower Tribe.

This order has a 1-leafed calyx united to the rudiment of the seed-vessel, and a 1-petalled corolla on the calyx, with as many stamens rising from the calyx as there are divisions of the corolla; ovary superior; leaves commonly alternate; plants yield a white milk. Belong chiefly to the northern parts of the earth; beauty is their chief property.

Campanula. L. 5. 1. Bell Flower.

Named from the resemblance of the flower to a small bell. More than 110 species have been described, though only 3 appear in this State; all yield beautiful flowers, grow in the borders of

hedges and open woods, or in moist situations among grass and other plants.

C. rotundifolia. L. Hair Bell, or Scotch Bell. A beautiful and slender plant, with fine blue flowers, and radical leaves, roundish ; woods ; June. As the stem leaves are long, linear, and give the plant the appearance of flax, it is sometimes called *Flax Bell.*

C. aparinoides. L. Prickly Bell. Has a slender and branched stem, a foot high, with small white flowers ; June ; wet meadows.

C. perfoliata. L. Clasping Bell Flower. Stem about a foot high, erect, and angular, with cordate, clasping leaves, and not perfoliate in fact ; flowers small, sessile, in the axils of the leaves.

C. speculum. L. Garden Bell Flower. Has long been cultivated in gardens ; a large branching plant, bearing large, light-blue, and whitish flowers, and having large leaves ; it receives its specific name from the resemblance of the flower, as you look into it, to a mirror or hand speculum, and hence called *Venus' Looking Glass ;* it is a splendid flower, and a native of southern Europe.

C. medium. L. Common Bell Flower. Came into England from Germany in 1597, and thence to our country, under the name of *Canterbury Bell ;* is a very beautiful flower of different colors, commonly blue or white, single, and often double ; never can fail to be admired, while plants shall be cultivated ; is a plant very easy to be reared, and its flowers blossom for a long time.

C. pyramidalis, L., and some others, have been introduced, and are found in gardens.

ORDER 175. LOBELIACEÆ. The Cardinal-Flower Tribe.

Calyx superior, 5-lobed, or entire, with an irregular, 1-petalled corolla, 5-lobed, or 5-cleft ; stamens 5, inserted into the calyx ; ovary inferior, 1 – 3-celled ; leaves alternate.

Acrid and dangerous plants, and some are very poisonous ; they abound within and near the tropics.

Lobelia. L. 5. 1.

Named in honor of Lobel of Lisle, physician and botanist to James the First of England. Nearly 100 species have been described ; about a dozen belong to North America, and 7 to this State ; only 3 to Europe.

Stamens united into a tube towards the summit ; corolla irregular, cleft on the upper side towards the base.

L. cardinalis. L. Cardinal Flower. Grows on the banks of streams in alluvial soil, and in alluvial meadows and low grounds, 2 or 3 feet high, leafy, and bearing a long spike of fine scarlet flowers, and hence its common name. It is a splendid plant when in flower, and is found over much of the United States ; it is easily cultivated in gardens, and forms a fine border flower.

L. fulgens, W., and *L. splendens*, W., both from Mexico, are the two other "grand ornaments of this genus." All are cultivated in England, with more than 30 other species. *Loudon.*

L. inflata. L. Indian Tobacco. The leaves contain a white, viscid juice of a very acrid taste, and very poisonous to the human system ; the plant operates as a violent emetic, and is the dangerous medicine of many who are called vegetable doctors, or botanic physicians. This species is spread extensively over the fields, and in waste grounds, varying much in height, and when over a foot high is much branched, bearing small, light-blue flowers ; the fruit-vessel enlarges, and becomes much inflated in maturity.

The driveling of horses which are pastured in August and September, is attributed to the noxious salivating properties of this plant.

L. pallida. Muhl. A common plant over fields, 1 – 2 feet high, slender, not branched, with quite small flowers, bluish, and the spatulate root-leaves early decaying ; June and July.

L. Kalmii. L. As tall as the last, but more slender ; entire leaves linear, and flowers on long foot-stalks ; fields ; much more rare than the others.

L. Dortmanna. L. Common to Britain and this country ; stem a foot or more high, with pale-blue flowers, pendulous, and remotely racemed ; swamps and wet grounds ; July.

L. syphilitica. L. From 1 to 3 feet high, and larger in proportion than the others, with sessile, ovate-lanceolate leaves, and large blue flowers on short pedicels ; swamps ; August and September. If this plant ever had any special action upon the disease after which it is named, and which is the manifest curse of divine providence upon the particular guilt of man, it appears long since to have been deprived of its influence.

L. Nuttallii, R. and S., seems to occur in a few places, in swamps ; small, filiform, 2 feet high, with oblong-linear leaves.

ORDER 181. CUCURBITACEÆ. The Gourd Tribe.

Calyx 5-toothed, sometimes obsolete ; corolla with 5 divisions, scarcely distinguishable from the calyx, with strongly marked veins ; stamens 5, distinct, or cohering in 3 parcels ; stigma very thick ; ovary inferior, 1-celled, and the fruit fleshy, succulent, showing the scar of the calyx, and having flat seeds ; stem succulent, climbing by means of tendrils or rooting by them ; leaves palmate, or with palmate ribs, succulent ; flowers white, red, yellow, usually diclinous, or with stamens and pistils in different flowers, sometimes monoclinous.

Many useful plants are in this order, some for food, some for medicine ; some are poisonous. Chiefly natives of the tropics.

Cucurbita. L. 19. 15.

From a word that means a vessel, from the use to which the shell of the fruit of some species was anciently applied, as the gourd. The 13 species are chiefly of Indian and African origin ; none indigenous to this part of the country.

C. pepo. L. Pompion, or Pumpkin. From the Levant.

C. ovifera. L. Egg Squash. From Astracan.

C. verrucosa. L. Club Squash. From the Levant.

C. melopepo. L. Flat Squash. From the Levant.

C. lagenaria. L. Gourd, Calabash. From India.

C. citrullus. L. Water Melon. From the South of Europe.

Of most of these species, there are several varieties, differing in some character of importance. Of the Water Melon, some are large, and with large seeds, and of reddish or white color within ; others are small, and have small seeds, and some citron-like, and yet retaining their peculiarities with much constancy.

Of the Squash, each kind has endless varieties ; and, unless they are cultivated separately, there can be no dependence upon the variety that may be hoped for from the seed.

The *Pompion*, or *Pumpkin*, for so it is written in England as well as in the United States, is more certain, and the varieties are more permanent. The seven-year pumpkin is a great curiosity, for its unchanging nature ; I have seen one which appeared fully sound and unaltered, which was more than three years old, and had stood upon a shelf exposed to all the common changes of the air. The common pumpkin is the standard variety, and too useful to need remark. Its seeds are distinctly diuretic, and, in some degree, the fleshy part of the fruit. One variety grows to an enormous

size ; and that from Ohio is remarkably sweet. In England the pumpkin is cultivated to considerable extent. " When the fruit is ripe, they cut a hole on one side, and having taken out the seeds, fill the void space with sliced apples, adding a little sugar and spice, and then, having baked the whole, eat it with butter, under the name of pumpkin pie." *Loudon.* This English pie is very different from the pumpkin pie of New England, so necessary to Thanksgiving, that a Yankee, it is said, cannot be without it, and that in one town the good people actually postponed the day of Thanksgiving till the needed molasses should arrive for its composition. Our pumpkin pie is likely to be a permanent manufacture and article of consumption in the season, and not to be displaced by any substitute.

Cucumis. L. 19. 15.

Has a similar derivation with the preceding genus, and its 17 species chiefly belong to the eastern continent. We are familiar only with 2 species, both natives of India.

C. sativus. L. Cucumber. Too well known to need description, and, by cultivation, now showing nearly a dozen varieties, half that number being common in the gardens.

C. melo. L. Muskmelon. The reason of the English name is obvious to all who have tasted this fruit. The specific name is derived from the Greek word for *apple*, from the shape of some varieties of this melon, as that of *C. colocynthis*, which has the " size and color of the orange." One variety of the Muskmelon is commonly called *canteleup*, or, as often written, *cantelope*, a very delicious fruit. There are many varieties cultivated, as the yellow, long, netted, green, citron, nutmeg, egg, &c.

Momordica. L. 19. 15.

Has its name from the Latin *to chew*, from the chewed appearance of the seeds ; has about a dozen species, nearly all belonging to India.

M. echinata. Muhl. Balsam Apple. Wild Cucumber.

Found on the banks of streams, on the Connecticut and Housatonic Rivers ; a climbing vine, with cordate, 5-lobed leaves, and tendrils ; fruit 2 – 4 inches long, thick, covered with prickles, echinate, and having 4 large, long, and thick seeds ; blossoms in August.

Sicyos. L. 19. 15.

One of the Greek names for *Cucumber ;* a few species further South.

S. angulatus. L. Single-seeded Cucumber. Grows also on the banks of streams ; often cultivated, as it will run far, and form a dense and large arbor ; a climbing, small vine, with whitish flowers, and greenish ; bears several fruits in one cluster, each about an inch or more long, and containing one very large seed ; blooms from June to September ; leaves large, cordate, angular, toothed.

The powerful cathartic of the shops, known as Elaterium, is merely the inspissated juice of the fruit, known under the title of *squirting cucumber*, *M. elaterium*, L., because the ripe fruit throws out its juice and seeds with much force ; this is a native of the South of Europe, and sometimes found in our more extensive gardens.

ORDER 182. PLANTAGINEÆ. The Rib-Grass Tribe.

Only one genus in this order belongs to Massachusetts. The plants are commonly without a stem, that is, they have only a flower-stalk, their leaves are radical, and their flowers in a long spike. The calyx and corolla are distinct, the former being 4-leafed, and the latter 4-parted ; the flowers unattractive.

Plantago. L. 4. 1.

P. major. L. Common Plantain. One of the plants that seem to follow man in the temperate climes, so that where he rears a hut or tills the soil, it appears to cheer him on his way. The Indians called it the *White Man's Foot.* Leaves somewhat

mucilaginous, and formerly used as an application to sores. Small birds feed on its seeds, and probably some insects. Common over Europe ; introduced into the United States, and the following species also.

P. lanceolata. L. Ribwort. Has long and narrow leaves, strongly nerved, with a short dense spike of flowers, and is usually taller than the other ; stem often near 2 feet high ; upland meadows and fields ; indigenous to Britain.

P. maritima. L. Sea Plantain. Grows on salt marshes, with short fleshy leaves, very variable in length, as well as in abundance of flowers. Found along our coast ; but said to grow on mountains also in Europe ; indigenous to both continents.

ORDER 183. PLUMBAGINEÆ. The Leadwort Tribe.

Named from Plumbago, an important genus, which had the reputation anciently of curing a disease of the eyes called *plumbum ;* but of the genus no species belongs to New England.

The plants of the order have very opposite qualities ; a species of some importance is in this State.

Statice. L. 5. 5.

S. limonum. L. Marsh Rosemary. Grows in salt marshes ; rather showy, quite branching, full of small flowers ; radical leaves, shorter than the stem. The root yields an important astringent, and is much used by physicians ; Bigelow's "Medical Botany." About 30 species of Statice are cultivated in England, and are considered quite ornamental plants. The species just mentioned is indigenous to England as well as this country.

Statice has its name from a Greek word, *to stop*, because it stops certain diseases. *Loudon.*

ORDER 184. DIPSACEÆ. The Scabious Tribe.

In this order, the flowers form a head or tuft, aggregated into a mass more or less dense, and surrounded with calyx-like leaves, called an involucre, while the proper, inner calyx is connected with the germ, and bears the corolla inserted towards its top.

Dipsacus. L. 4. 1. Teasel.

Named from the Greek, *to thirst*, on account of the water, which is commonly found in the axils of the leaves, and which has been considered a cosmetic. *Loudon.*

D. sylvestris. L. Wild Teasel. Grows 2 – 5 feet high, branching, bearing large terminal heads of flowers ; chaff stiff and straight, and leaves opposite, and nearly growing together at the base ; blossoms in July ; in light soil, in Sheffield, Berkshire County. Whoever has travelled on the Great Western Canal in midsummer to October, must have remarked the abundance of this plant along the banks of the canal west of Utica, for more than 100 miles. It is supposed that it was introduced from England.

D. fullonum. L. Fuller's Teasel. Cultivated for the sake of the heads, which are used for raising the nap on cloth, by means of the hooked chaff of the mature head ; leaves opposite. The plant is usually a profitable culture. A native of Britain.

ORDER 186. COMPOSITÆ. The Compound Flowers.

This is a natural and large assemblage of plants, having compound flowers, formed of many florets in one head or mass, and stands on a broad base or receptacle, surrounded by a leafy involucre, and having the anthers of the 5 filaments united in a tube. Thistle, Dandelion, Mayweed, Burdock, are well known instances. The calyx, if there is any, adheres to the seed, and often terminates upwards in a membrane, or chaff, bristle, horn, hair, or the like ; the corolla is simply tubular, or else ligulate or strap-like, long and flat, as in the Sunflower, or funnel-shaped, and, in

both these cases, notched or toothed ; ovary inferior, with a single style usually forked into 2 stigmas ; florets often have chaffy, or scaly, or hairy bracts at their base, generally perfect and monoclinous, but a few are diclinous ; leaves alternate or opposite, commonly simple.

Great numbers of this order occur in this State, and are spread over the world. In France and Germany, they form about one eighth of the flowering plants ; in North America one sixth, and between the tropics nearly one half. *Humboldt.* Many of this order have valuable properties, while a great proportion of them have not yet been applied to any useful purpose. Their flowers form much of the beauty of the later summer and autumn, and for this reason many are cultivated.

The order is distinguished into 3 families or subdivisions, by Lindley, and variously subdivided by other authors. It may not be necessary for this survey, to follow any subdivisions.

Arctium. L. 17. 1.

A. lappa. L. Burdock. A well-known plant in waste grounds, indigenous to Britain, whence it was introduced into this country. It has its name from the Greek, meaning a *bear*, on account of its rough fruit, and its specific name from the Celtic, a *hand*, because its fruit lays hold of all that comes in contact with it. It is a dock-like looking plant, and, from its burs, is appropriately called *Burdock.* Its leaves have been a common application among the people for draughts upon the feet, and the softening of some tumors. Its leaves, soon after flowering, contain a large proportion of potash.

Leontodon. L. 17. 1.

L. taraxacum. L. Dandelion. Another common plant about houses, and over fields, introduced from Britain. The leaves are radical, and cut into segments or large teeth standing backwards like the *teeth of the lion*, whence its name, from the two Greek words of this signification ; the English name is a corruption of the French, and has the same meaning. Used as a diuretic. The extract has obtained some reputation in medicine. In the spring, the herbage is often used for greens, as it is pleasant

and healthful. The expressed juice of the leaves is often drunk as a remedy in dyspepsia. 4 other species are found in Europe. Forms a very profitable crop near cities.

Krigia. L. 17. 1. Dwarf Dandelion.

K. Virginica. L. A small, humble plant, much resembling a neglected dandelion ; grows in fields and open woods ; blossoms from May to August, with a scape often only 2 – 3 inches high.

K. amplexicaulis. Nutt. Has a stem a foot high, divided into branches, and yet like a scape or radical flower-stalk ; flowers large, orange-yellow, terminating the branches ; has little interest ; blossoms in June.

This is a North American genus, and was named after Dr. Krieg, a German botanist, who collected plants in this country.

Apargia. W. 17. 1.

A. autumnalis. W. False Hawkweed. Has single yellow flowers on a scape, with radical leaves, toothed or pinnatifid ; resembles Dandelion ; a mere weed ; flowers from July to September. Introduced from Europe, where about a dozen other species are found.

Cichorium. L. 17. 1.

C. intybus. L. Succory. Endive. An elegant plant, 2 or 3 feet high, roughish, with large blue flowers, mostly in pairs along the stem ; roadsides and pastures ; July to September ; leaves runcinate.

The blanched leaves are eaten as a winter-sallad. In France, it is said, the roots of one variety are dried and ground with coffee, to give it a more exquisite flavor. *Loudon.*

C. endivia. L. The Endive of the English, brought from the East Indies ; cultivated for its blanched leaves ; much like Celery.

Lactuca. L. 17. 1. Lettuce.

Three species indigenous to this State ; two, *integrifolia*, and *sanguinea*, Big., chiefly about Boston, and first described by Dr. Bigelow ; another, *villosa*, has also been found.

L. elongata. Tall or Wild Lettuce. A large, strong plant, often 6 or more feet high, about fences in cultivated fields, with long and large runcinate leaves, clasping the stem. Totally different from *Fireweed.*

In the gardens are cultivated several varieties of *L. sativa*, L., Common Lettuce. As a sallad, few plants compare with these varieties. As food, it is a rather soporiferous but healthful vegetable.

The genus is named from the milky juice of the leaves, in which is contained some opium. Indeed, this drug, little inferior to the opium of the poppy, has been obtained in England and in this country by incisions in the plants. Cultivation lessens the quantity of the juice. *L. elongata* yields it in great quantity and perfection. About 20 species are indigenous to Britain, or cultivated there.

Prenanthes. L. 17. 1.

The name is derived from the Greek for *drooping flower*, a common character of the species.

4 species, natives of this country, are found in this State ; contain a white juice, and resemble Wild Lettuce.

P. alba. L. White Lettuce. About fields, 4 – 5 feet high.

P. altissima. L. Tall, often 6 feet high, in woods. None of the species of any use in New England. *P. cordata*, Ph., and *P. virgata*, Mx., are distinguished, the former by yellowish, the latter by pale-purple flowers. One species, *P. serpentaria*, Ph., which grows in the Southern States, and is called *Lion's Foot*, is used for the cure of the bite of the rattlesnake ; it does not greatly differ from *P. alba.*

Sonchus. L. 17. 1.

Name derived from the Greek, for *soft* or *hollow*, as the plants have a soft and feeble as well as hollow stem.

Four species are found in the State.

S. oleraceus. L. Sow Thistle. Grows in gardens and waste grounds about houses and barns ; about 3 feet high, smooth, brittle, easily crushed, with clasping leaves, runcinate, and with spiny teeth ; a late plant, flowers in August and September. Has properties similar to Dandelion ; eaten by rabbits, but rejected by most animals ; odor unpleasant. Introduced from Britain.

S. leucophæus. L. A similar plant.

S. acuminatus. W. Has small, numerous, blue flowers ; on low grounds, and rare ; August.

S. spinulosus. Big. Prickly Sea Thistle. Grows about salt marshes, 2 feet high ; lobes of leaves curl backwards, and clasp the stem, and have edges waved ; flowers somewhat umbel-form, yellow ; August.

At the South, another species, there indigenous, *S. Floridanus*, W., is used as a remedy for the poison of the rattlesnake, and is called *Gall of the Earth. Pursh.*

Tragopogon. W. 17. 1.

T. porrifolium. W. Vegetable Oyster, or Goat's Beard. The genus is named from the Greek, for *Goat's Beard*, on account of the long, hairy beard of the seeds, and the species from the resemblance of the leaf of the young plant to that of the leek or onion ; introduced from England, and cultivated for its roots, which, prepared in certain modes, have the odor and flavor of the oyster. On the continent of Europe, the long tapering roots are used for food, like the parsnip. It is sown in the spring, and the roots are used in the following winter and spring ; blossoms the second season. The plants, from the self-sown seeds of August, blossom the next season.

HIERACIUM. L. 17. 1. Hawkweed.

Five species, *H. venosum*, L., *Gronovii*, L., *Kalmii*, L., *marianum*, W., and *paniculatum*, W., are common in the borders of fields and woods, all natives of this country. The genus has about 80 species, of which nearly seven-tenths are indigenous to Europe, and one tenth to North America. Very few of them appear to have much of either utility or beauty.

H. venosum. L. Stem 2 feet high, naked and branching, with long radical leaves, strongly marked with dark-red veins.

It seems to have been a notion, that the hawk strengthened its vision by the juice of some of these plants ; hence the English name, and also the generic name from the Greek for a *hawk*. *Loudon.*

LIATRIS. L. 17. 1.

L. scariosa. W. Gay Feather. A splendid plant, when its long raceme is in full blossom ; flowers of a bright-blue, on a simple stem, with long leaves, narrowed at both ends ; blossoms in August ; Danvers. Cultivated in gardens for its beauty.

L. spicata. W. Another beautiful species ; a cultivated but more rare plant ; flowers purple.

This is an American genus of near 20 species, usually found in more southern latitudes. The origin of the generic name is not known ; the English name is truly characteristic. The species are considered an antidote for the bite of the rattlesnake, and *L. scariosa* is often called *Rattlesnake's Master.*

VERNONIA. L. 17. 1.

An American genus of 10 species ; one in India. Named after William Vernon, who collected plants in America.

V. Noveboracensis. W. Flat Top. Stem 3 – 5 feet high, branching at the top, and the flowers spread out on branches, so as to be nearly flat and level, with numerous scabrous leaves ; flowers small and dark-purple ; wet places.

Carduus. L. 17. 1.

A numerous genus, from which a large number of species was separated under the generic name, Cnicus, by Willdenow. Both names are derived from words which mean *points* or *prickles*, as the plants are usually full of prickles or spears. Of more than 100 species, the far greater portion belong to Europe, about a dozen to North America, and 7 are found in Massachusetts. They are here ranked under Carduus, and have little beauty; most are weeds, and some very troublesome.

C. discolor, Muhl., and *C. lanceolatus*, W., are the Common Thistles of our fields, the latter being found in waste places and along fences, and much more abundant than the other; its heads of flowers are rather smaller and with more tapering cones. The latter was introduced from Europe, but the former is a native of this country, and has been cultivated in some of the great gardens of England.

C. glutinosus. Big. One of the handsomest species; in damp, rich soils; August, and biennial. *Big.*

C. altissimus. W. Tall Thistle. Another native of this country, 6 – 10 feet high, not very rough; meadows; August.

C. horridulus, Ph., and *C. pumilus*, Nutt., are found in the vicinity of Boston. *Big.*

C. arvensis. L. Canada Thistle. From its being propagated from Canada southwards; the common field thistle in Europe, as well as Canada and the Northern States. Within the memory of men now living, this plant came into the northern part of Vermont and New York, and has since spread to the south part of New England and New York. In 1818 it had not been seen by Nuttall in Pennsylvania, and was not in the "Plants of Chester County, Pennsylvania," published by Dr. Darlington, in 1826. By some it has been supposed, that its seeds were wafted across the Atlantic from the North of Europe by winds,

but far more probably the seeds have been brought with other seeds, or in hay or straw. In Europe it is the same vexatious plant as in this country. It is propagated by its roots as well as by seeds. The roots extend many feet in depth, as well as far in a horizontal direction, and send out many runners. The only effectual eradication of the plant is cutting it down annually before it blossoms, till the vital energy of the roots is exhausted. Its course southwards is sure, and nothing but climate will arrest its progress over the land. Its numerous seeds afford food to many smaller birds and animals.

C. pectinatus. W. Comb-Thistle. With purple flowers, and comb-like pinnatifid leaves, without prickles, rarely cultivated in gardens.

ONOPORDUM. L. 17. 1.

O. acanthium. L. Cotton Thistle. As its leaves resemble those of Acanthus, its specific name was derived from it; a native of Britain, not very extensively spread over this State; stem 4 – 6 feet high, with broad, long, spinous leaves, sessile, running down the stem and forming wings to it, and being covered with a matted, cottony substance, giving a hoary appearance to the plant; seeds large, and not blown about by the seed-down; at Pittsfield and Lanesborough, in Berkshire County, as well as in the eastern part of the State. If it were not so rough, it would be a noble plant, as it is a curious one.

CARTHAMUS. L. 17. 1. Common Saffron.

From the Arabic, *to paint*, on account of its coloring matter.

C. tinctorius. L. The common Saffron of the gardens, used by the Chinese for beautiful colors of their silks, and in parts of Europe for coloring soups and puddings, cakes and bread; its flowers medicinal also; native of Egypt.

C. cæruleus. L. Blue Saffron. Is sometimes cultivated.

EUPATORIUM. L. 17. 1.

An extensive genus, of near 80 species, chiefly found in

America, and not one in Europe ; named from Eupator, king of Pontus, who first used an Asiatic species in medicine. 11 species are credited to this State, 6 of which are widely spread over it ; the others are not very common, and have not much interest.

E. ovatum. Big. A new species ; a large and rough plant, 3 – 4 feet high ; in low grounds, at Sudbury. *Big.*

E. perfoliatum. L. Thoroughwort. Boneset. A well-known plant in fields, with opposite leaves growing together at their base, or pierced by the stem, woolly. Its medicinal properties render it a valuable plant. Bigelow's "Medical Botany."

E. purpureum, L. and *E. verticillatum*, L., often called Queen of the Meadow, and Joe Pye Weed. Grow 3 – 5 feet high, with whorled leaves, both bearing level-topped corymbs of purple flowers, and on low grounds. The latter is the rougher plant, less purple on its stem, and with its stem less frequently hollow. A decoction of the roots is often used in the western part of the State as a remedy for the painful disease, the gravel ; said to have been recommended to the whites by an Indian of the name above.

E. ageratoides. W. Rather elegant in its form, and delicate in its white flowers, beautifully corymbed ; about hedges, and in open woods, in rather moist grounds. Besides these, there are the *E. aromaticum*, L., *teucrifolium*, L., *hyssopifolium*, L., *sessilifolium*, L., and *maculatum*, L.

Mikania. W. 17. 1.

M. scandens. W. Climbing Thoroughwort. Named after Professor Mikan, of Prague. *Loudon.*

Stem smooth, twining, with glabrous and opposite leaves on long petioles ; resembles the last genus ; in the middle and eastern part of the State ; wet places ; flowers in August. *Big.*

Conyza. L. 17. 2.

From the Greek, *a gnat* or *flea*, as it was thought to drive away

these insects ; the name in English and in French, is founded on the same tradition. It contains many species, spread over the world.

C. camphorata. Muhl. Marsh Fleabane. Stem 20 inches high, with pubescent leaves, thick and erect, branching and bearing corymbs of purple flowers ; grows in the western part of the State, as well as on salt marshes. The bruised leaves have an aromatic, not pleasant odor.

GNAPHALIUM. L. 17. 2. Cudweed.

More than 100 species ; 10 found in this country, and 7 in this Commonwealth ; not of much consequence ; the name was anciently applied to a plant not certainly determined.

G. margaritaceum. L. Life Everlasting. A common downy or woolly plant, over fallow fields, about 2 feet high, bearing many very white or pearly flowers, remaining through winter to spring. It has a slight odor, which is rather agreeable.

The heads and some of the leaves are collected by the Shakers in Hancock to manufacture into mattresses, which are said to be pleasant and healthful.

G. polycephalum. L. Wild Lavender. Sweet Life Everlasting. About the height of the other, and in similar situations, but is a greener plant, with many terminal flowers ; whole plant of a pleasant odor.

G. decurrens. Ives. Strong-scented Everlasting. Much resembles the last, but its leaves are sessile, and running down the stem, downy on the under side ; odor too strong to be pleasant ; woods and fields.

G. plantagineum. L. Mouse-Ear Everlasting. Rises early in the spring from a few inches to a foot in height, and flowers for a long time ; an insignificant plant, in cold grounds, abundant.

Three other species, *G. uliginosum*, L., *G. Germanicum*, Sm., and *G. purpureum*, A., are less common, and of no importance.

The first of these is a brownish, dirty, insignificant plant, low, and even prostrate in the dust, beside roads ; common everywhere.

ARTEMISIA. L. 17. 2. Wormwood.

Named perhaps after Artemisia, queen of Mausolus. Many species of the genus, chiefly on the eastern continent.

A. abrotanum. L. Southernwood. An exotic of our gardens from the South of Europe, named from its supposed virtue in prolonging life, from the Greek, *against mortality ;* now considered to possess feeble medicinal properties.

A. absynthium. L. Garden Wormwood. Another well-known exotic from Europe ; its name is from the Greek, *unpleasant ;* said to be tonic, antispasmodic, and anthelmintic ; also considered efficacious on wounds and bruises. Used to boil with clothes to take out stains and iron rust, probably from its containing oxalic acid. Naturalized in many places. In New Ashford, Berkshire County, it fills the street for many rods, and a few years ago loads of it were cut and distilled for obtaining the oil of wormwood. It has compound hoary leaves.

A. vulgaris. L. Mugwort. A native of Britain, and not often cultivated.

A. Canadensis. Mx. Wild Wormwood. A small plant, with a stem somewhat woody ; leaves of many segments, and numerous flowers. Found in the vicinity of Amherst College, and on the beach at Plumb Island.

ANTHEMIS. L. 17. 2.

A. cotula. L. Mayweed. From the Greek for *a flower ;* a low plant, too common on the roadsides and about houses to need description ; has some medicinal virtues ; native of Britain.

A. nobilis. L. From Britain ; affords the common chamomile flowers.

Chrysanthemum. L. 17. 2.

Is named from its yellow flowers ; many species ; some without yellow flowers.

C. leucanthemum. L. White Weed. Ox-Eye Daisy. The specific name is from its white flowers, so that the whole name means *white-flowered yellow-flower.* The English name well characterizes the appearance of the flower.

A troublesome plant, spread over the fields and meadows of many portions of this State, to the great annoyance of the farmer, as it much diminishes the crop of grass, and is not itself much relished by cattle or horses. The only method to eradicate it is, early mowing before the seed is ripened, and, to be sure, as soon as it begins to blossom. In a few years, this course must greatly diminish it. A native of Britain.

C. parthenium. L. Feverfew. An exotic from Europe, often found in gardens.

C. coronarium. L. The common Chrysanthemum of gardens, affording beautiful flowers, a native of Sicily.

In Europe *C. Sinense*, L., from China, is much cultivated as one of the most beautiful of autumnal flowers. It is also cultivated in this State.

Achillea. L. 17. 2.

Named from its fancied powerful properties, after Achilles, a physician. Of near 50 species, nearly all belong to Europe and the Levant.

A. millefolium. L. Yarrow. Naturalized, and common by fences and in fields ; is a plant of little consequence. 3 or 4 species are found in North America. The leaves are simple, but greatly divided, so as to look like *many ;* hence the specific name. *A. ptarmica*, L., Goose Tongue, with leaves lanceolate, acuminate, and sharply serrate ; introduced ; has been found in Danvers, by Mr. Oakes.

Tanacetum. L. 17. 2. Tansey.

T. vulgare. L. Naturalized in many places. Its stalk and leaves make it a handsome plant, and its deep yellow corymbs of flowers increase its beauty. The variety *crispum* has more beautiful crisped or curled leaves. Aromatic and very bitter ; formerly used to make rum more palatable, though it is hoped it will no longer be abused, with mint, in forming intoxicating juleps. The plant is stimulant, carminative, and sudorific ; a native of Britain.

Inula. L. 17. 2.

A genus whose species is spread over the world ; 24 species are native or cultivated in England.

I. helenium. L. Elecampane. A large plant, with long and wide leaves, and numerous flowers of yellow color, common by roadsides. The root is tonic and expectorant, and seems to operate favorably upon the lungs when affected by colds. It is said to have been the active ingredient in a quack medicine, which found an extensive sale a few years ago. It is sometimes given to horses, cut up and mingled with oats, to relieve the disease commonly called *heaves.*

Inulin is a peculiar vegetable compound found in the root, to the action of which its medicinal power is attributed. Townsend recommends an electuary of the roots with sulphur and honey, as beneficial to diseased lungs. The officinal name, *Enula campana*, originated the vulgar name, *Elecampane. Loudon.*

I. falcata. Ph. A low plant, woolly, with sessile, acute, spreading leaves, and very small, bright, yellow flowers ; in pine woods ; New Bedford and Nantucket.

Tussilago. L. 17. 2.

From the Latin, *to drive away cough*, from its supposed efficacy in diseases of the lungs ; in modern times its medicinal virtues are not highly esteemed.

T. farfara. W. Garden Colt's Foot. Named from the

resemblance of the leaf to the shape of the base of a colt's foot; and, as the woolly leaves resemble those of a Poplar, called *Farfarus*, the specific name obtained. A single flower grows on a short, leafless, scaly stalk; leaves radical, broad and large; blossoms early in the spring, before the leaves appear. A native of Britain, naturalized in many places. Expectorant; its leaves were smoked in ancient times as a cure for diseases of the lungs.

T. frigida. L. Wild Colt's Foot. Leaves triangular, heart-shaped, unequally toothed, and downy underneath; producing a corymb of white flowers, with a pale purplish disk; has been found in the mountain woods in Massachusetts. *Big.*

T. palmata. Ait. Has flowers in a corymb, with roundish, heart-shaped leaves, half 7-lobed, thick, downy beneath; Sunderland; indigenous in North America.

Bellis. L. 17. 2. Daisy.

From a word meaning *beautiful* or *pretty*, and so true of the common daisy.

B. perennis. L. A beautiful, white or purple-flowered plant, with leaves obovate and crenate; a single flower on a scape; partially naturalized in Pittsfield. *Eaton.* A native of Britain, of which there are several varieties.

Tagetes. L. 17. 2.

Named from Tages, a heathen, Tuscan divinity.

T. erecta. W. African Marygold. Is from Mexico; has pinnate leaves, an angled calyx, and yellow flowers.

T. patula. W. French Marygold. Also from Mexico; has pinnate leaves, a smooth calyx, and yellow flowers.

Both are rather beautiful, and cultivated for their beauty; chiefly an American genus.

ZINNIA. W. 17. 2.

Named after John Godfrey Zinn, who published a catalogue of plants in the garden of Gottingen. *Loudon.*

An American genus of 5 species.

Z. violacea, W., and *Z. verticillata*, W. Blood Marygold. Beautiful plants from Mexico, introduced within a few years into our gardens.

STARKEA. W. 17. 2.

Named after the Rev. Mr. Starke, a botanist of Silesia ; only one species, a native of the island of Jamaica.

S. umbellata. W. Lately introduced into flower-gardens, for its beauty. The leaves are opposite, nerved, and downy beneath, and the flowers are in umbelliferous heads.

ERIGERON. L. 17. 2. Fleabane.

From the Greek for *spring* and *old man*, because some species become old early in the season, which is not the fact with any of our species. About 50 species are spread over Europe and North and South America ; 7 are common in this State ; all weeds. As some species have a strong aromatic scent, which is always offensive to insects, and avoided by most of them, we see the origin of the English name.

E. bellidifolium. W. Plantain-leafed Fleabane. Stem 2–3 feet high, with purplish blue flowers ; though named *daisy-leafed*, it has little beauty of foliage compared with that plant.

E. Canadense. L. An unsightly plant, 2–4 feet high, with small flowers, growing over the fields, with a strong, aromatic, offensive odor ; astringent, and used sometimes by farriers to stop the flowing of blood from wounded horses ; spreads rapidly on every side ; August.

E. integrifolium. Big. Grows beside roads and woods, 2

feet high, slightly pubescent ; leaves lanceolate, nerved, entire, slightly clasping ; June to August.

The other four species, *heterophyllum*, L., *Philadelphicum*, L., *purpureum*, L., and *strigosum*, L., have little interest.

Senecio. L. 17. 2.

So called, like the last, for the early maturity of some of the species. Mostly mere weeds ; about 140 species spread over Europe and the adjoining countries, and the Cape of Good Hope ; about 14 species in this country, only 5 in this State, and 2 of them rather rare.

S. aureus, W., and *S. obovatus*, W. Ragwort. Grow in wet places, 2 – 3 feet high, with yellow blossoms, rather showy. The decoction of these is sometimes successfully used for the cure of the salt-rheum, by washing the eruption with it.

S. vulgaris. L. Groundsel. Introduced from Europe ; emollient and resolvent, and used in Europe as a remedy for spitting of blood. *Loudon.*

S. hieracifolius. L. Fireweed. The well-known plant that springs up where a clearing is made in the forest by burning up logs and brush ; a large plant, with unsightly flowers, and large succulent leaves. In travelling the Great Canal, in the State of New York, you pass large neglected fields of half-cleared lands, which are overrun by this weed. Cultivation eradicates it with the greatest ease, although it appears to yield a multitude of seeds. The plant has a nauseous odor.

S. balsamitæ. W. A small plant with radical leaves, oblong, serrate, petiolate, and the stem leaves lyrate or pinnatifid ; June, in dry pastures ; Stoneham. *Big.*

Helenium. L. 17. 2.

An American genus of few species ; named from a species of Inula, Elecampane, whose cosmetic properties the famous Helen is fabled to have used.

H. autumnale. L. Sneezewort. False Sun Flower. Stem 2 feet high, branched, finely winged by the sessile leaves which run down the stem; bright-yellow flowers nearly in a level corymb; bitter; fields; August.

Dahlia. L. 17. 2.

Named after a pupil of Linnæus, A. Dahl; a genus from Mexico, of 3 species; grows in sandy meadows; is the most popular, perhaps, of all the autumnal flowers.

D. superflua. L. Cultivated in the greatest perfection by cuttings of the roots; leaves and stem rather coarse, but the flowers are large, single and double, and of a great variety of color, endure long also; the roots require to be preserved from the frost in a dry place, and early divided and planted; grows in loamy soils.

Aster. L. 17. 2. Star Flower.

Both the names derived from the radiating, or star-like appearance of the compound corollas. A great many species, about 100, belong to the genus; some are doubtless only varieties; a great proportion of them belong to North America and the Cape of Good Hope, a few only to Europe; 52 are credited by Beck to the Northern and Middle States; 20 are described by Bigelow as in the vicinity of Boston; and 31 are credited to this State in the "Geology of Massachusetts." They grow in all situations, along fences and hedges, in woods, on dry and wet soils, in valleys and on mountains. They are a great addition to the beauty of autumnal vegetation, as they grow in great profusion, have a fine green foliage, and bear a multitude of flowers, even to the coming of frosts that destroy all vegetation. They appear to delight in the cooler summers, and not to be hastened to maturity in the hotter summers. Useful properties, as food, medicine, or for manufacture, have been discovered in very few of them.

A. cyaneus. Hoff. Blue Aster. A beautiful species; stem 2 feet high, erect and smooth; upper part branching, and bearing separate, blue or purplish flowers; leaves long, sessile, clasping,

rather narrower towards the base. Edges of fields and woods ; August.

A. puniceus. L. Purple Aster. Stem often reddish, not straight, and rather angular, 2 – 3 feet high, with long leaves tapering to both ends, and slightly clasping, bearing its large and beautiful blue flowers on the ends and sides of the branches, hairy and rough. Fields and woods in rather wet soils ; September. A fine species.

A. prenanthoides. W. Much like the last ; flowers about equal, but whitish-blue ; leaves shaped like a spatula, or wider in the middle, and tapering to both ends, but more towards the stem, clasping ; less rough than the preceding, but in like situations ; September.

A. acuminatus. Mx. Sharp-leaved Aster. Stem a foot or more high, simple, erect, flexuous, angular, with broad leaves tapering long towards the base, towards the upper side toothed, and fully acuminate at the end ; flowers in a panicle, rather spreading, middle-sized, white in the rays ; on mountains ; August to October. Very different from the preceding.

A. linarifolius. W. Flax-leafed Aster. Stem about a foot high, stiff, roughish, decumbent, covered with long, stiff, narrow leaves, that give the plant a flax-like appearance at a little distance, and bearing a few single, purplish flowers, on short foot-stalks ; open woods, on hills and high plains in light soils ; blossoms in September and October. It is altogether a curious-looking plant ; flowers with white rays of a middle size.

A. diffusus. Ait. Branched Star Flower. A very branching and spreading plant, 1 – 2 feet high, unsightly, bearing a multitude of small white flowers ; September ; in woods and by roadsides, on hills.

A. conyzoides. W. Resembles some species of Conyza ;

1 – 2 feet high, branching considerably, more leafy below ; flowers smallish, white, with the scales of the calyx yellowish, and finely green on their tips, giving a variegated appearance to the flower ; in clearings and by fences ; July.

A. cordifolius. L. Heart-shape-leafed Star Flower. Stem often 2 feet or more high, erect, branching, rather smooth, with deeply heart-shaped leaves, acutely toothed, and on rather long-winged leaf-stalks, especially on the lower part of the plant, and bearing numerous whitish-purple flowers ; open woods, in light, dry soils ; September. A fine species.

A. corymbosus. Ait. Closely allied to the preceding, and equally handsome, with heart-form leaves below, and ovate above, and many whitish-blue flowers in corymbs ; woods ; July.

A. macrophyllus, Ait., and *A. paniculatus*, Ait. Nearly related to the two preceding, but clearly different ; grow in similar situations, and flower in September and October.

A. Tradescanti. W. Stem 4 – 6 feet high, erect, smooth, with long, narrow leaves, tapering to the base and sessile, branching at the summit, and full of purplish-white flowers. Grows beside fences in wet situations, and is an elegant species with middle-sized flowers ; September.

A. recurvatus. W. Seems to be only a variety of this, forming a tall, bending, or arched stem, with wider leaves ; in similar situations.

A. Novæ-Angliæ. L. New England Aster. The most beautiful of our species ; erect, 2 – 5 feet high, branching, leafy ; leaves lanceolate, sessile, and slightly lobed or auriculate at the base ; flowers numerous, terminal, nearly level-top-corymbed, deep purple, larger than the common size ; fields, in moist or dry soils, and beside fences ; August to October ; the plant has a fine aromatic odor.

Used by Dr. O. Partridge of Stockbridge, with gratifying suc-

cess, in the cure of the salt-rheum. It was prescribed originally by an Indian, and called by the people, *bee-flower*, because it is in September so sought for by the honey-bee. It is easily cultivated in gardens, and has great beauty.

A. phlogifolius. L. A fine species, 2 feet high, with somewhat glaucous leaves, and red or flame-colored petals, whence its name ; woods ; August to November.

A. diversifolius. Mx. Resembles the preceding species, but is distinct from it ; in similar situations.

A. amplexicaulis. Mx. Differs a little from the two preceding.

A. subulatus. Mx. A smooth plant ; stem 2 – 3 feet high, with spreading branches, and small purplish flowers ; leaves linear-subulate, acute ; salt marshes ; August to November ; Marshfield and Boston.

A. spectabilis. Ait. Named for its beauty, though it is inferior to several ; stem 2 feet high, bearing large blue flowers in a corymb ; leaves oblong-lanceolate, clasping, and roughish ; swamps ; August and September. In the vicinity of New Bedford.

A. multiflorus. W. Stem 2 – 3 feet high, diffusely branched, pubescent, with crowded flowers in terminal racemes ; branches horizontal ; leaves linear, entire, smoothish ; fields ; August.

A. miser. L. Nearly allied to the last, but is a poorer looking plant, as if neglected ; small flowers. The variety, *A. divergens*, is a very common, but ill-looking plant.

Several other species, *A. amygdalinus*, Mx., *cornifolius*, Muhl., *dumosus*, L., *ericoides*, W., *lævis*, Willd., *mutabilis*, W., *Novi-Belgii*, L., *rigidus*, W., *salicifolius*, W., *solidagineus*, Mx., *umbellatus*, Ait., and doubtless others, are of equal consequence with many already mentioned.

A. Chinensis. L. The China Aster of gardens. Remarka-

ble for its large and double flowers of many colors ; by cultivation greatly improved in the last fifteen years.

Several of our native species, are now found a valuable addition in gardens ; their flowers will probably increase in size and beauty.

In England, more than 100 species are native or cultivated ; and 75 species from North America have been introduced and propagated, in the zeal of the florists and botanists to be familiar with living plants. The native plants pass in England under the name of *Christmas daisies*, on account of the lateness of their blossoms, and are not esteemed very ornamental. *Loudon.*

Solidago. L. 17. 2. Golden Rod.

From its healing power over wounds, its name is taken from a Latin word, *to unite.* The genus has about 50 species, nearly four fifths of which belong to North America. All have yellow flowers except one, but are of very little beauty. They give variety to autumnal vegetation, but are coarse plants, and do not well bear inspection in detail. Twenty species are ascribed to this State. A part bear erect flowers, and another part have their flowers in one-sided panicles. Forty-three species from North America are cultivated in England.

S. odora. Ait. Sweet-scented Golden Rod. Stem 2 – 3 feet high, pubescent above, with long and narrow leaves, sessile ; flowers numerous on many branches. An aromatic oil gives to the plant a pleasant odor ; this is sometimes distilled from it. I have not noticed this species in the western part of this State. Medicinal ; Bigelow's " Medical Botany."

S. altissima. L. A tall, large, erect, stiff, hairy plant, covered with long, sessile leaves, and with a large, branching top of one-sided yellow flowers ; August ; hedges and fields.

S. Canadensis. L. Has a downy stem and lanceolate leaves, broader than the last, and rough, with a large, branched top of one-sided flowers ; stem 2 – 5 feet high ; August.

S. ulmifolia. W. Has large, elm-like, toothed leaves, elliptic, acuminate; flowers in a long terminal panicle, recurved; woods on hills; August.

S. lanceolata. Ait. Rises to near a level top of flowers in a corymb, branched, 2 feet high, with long narrow leaves, sessile, and grasslike at a little distance; fields; August.

S. bicolor. L. Has white flowers in the ray, and yellowish in the disk; stem hairy, 2–3 feet high, with hairy and oval leaves; racemes of flowers erect; whitish pubescence on the leaves; fields and woods; August to September. The flowers not a bright white.

S. ciliaris. W. The common Golden Rod of the fields.

S. tenuifolia. Ph. Closely related to the last.

S. speciosa. Nutt. Has larger rays and is the most beautiful. The other species that have been noticed, *lævigata*, Ait., *cæsia*, W., *gigantea*, Ait., *nemoralis*, Ait., *arguta*, W., *aspera*, Ait., *latifolia*, Muhl., *livida*, W., *rigida*, Ait., *serotina*, W., *squarrosa*, Nutt., and *stricta*, W., have various degrees of beauty. The *cæsia* is very beautiful.

Bidens. L. 17. 3.

Named from the two projecting teeth of the seed; embraces about 20 species, nearly all natives of America. They are unsightly and useless weeds. 5 species are found in this State, of which 3 are pretty common.

B. frondosa. L. Common Beggar Ticks or Cuckold, or, more elegantly, Burr Marygold. Grows 3–5 feet high, about gardens and yards, and infests cultivated fields. As the seeds have 2 barbed awns, they fasten themselves to the clothes, or to the covering of animals, and are widely scattered. Only careful cultivation will eradicate this troublesome weed; no beauty, and no obvious use; August.

B. cernua. L. Common Beggar Ticks. About ponds and ditches ; stem a foot or two high, with small, erect, yellow flowers ; August. A native of Britain.

B. connata. W. Has the lateral leaves connate ; stem 2 feet high ; in fields ; July.

B. chrysanthemoides. Mx. Grows in wet places ; seeds commonly with 4 awns ; August.

B. tripartita. L. Much resembles *B. frondosa ;* grows in wet places ; leaves opposite, mostly 3-parted, the lower often pinnatifid ; August.

Twelve species have been introduced from America into England, and cultivated there.

Helianthus. L. 17. 3. Sunflower.

Named from the Greek for *sun* and *flower*, on the popular notion, that the flowers of the great Sunflower turn towards the sun, and partially follow it, for which there may be some little foundation ; but especially from the size and appearance of that large and fine flower, the ray florets round the broad disk being an apt resemblance of the radiating appearance of the border of the sun, as the broad and glowing face of the "powerful king of day" comes "rejoicing in the east." This genus belongs almost exclusively to North and South America, and contains about 30 species, of which 12 are natives of the Middle and Northern States, and 5 are found in this State, 3 only being indigenous. They add considerably to the beauty of the woods and hedges in the autumn, though their fine yellow-rayed flowers are not very large.

More than 20 species, introduced from America, have been raised in England.

H. trachelifolius. W. Wild Sunflower. This is the common sunflower of the woods and hedges ; stem 3–4 feet high, branching towards the summit, roughish ; leaves ovate-lanceolate, serrate, 3-nerved, tapering into a short petiole ; August to October.

H. decapetalus. L. Closely related to the preceding, and united to it by some botanists, but its characters seem to make it distinct.

H. altissimus. L. Tall Sunflower. This is a lofty plant of the hills, with a smooth purple stem ; leaves petiolate and broad-lanceolate, tapering upwards ; chaff of the seed greenish ; woods ; July to September.

H. divaricatus. L. Spreading Sunflower. Stem 3–5 feet high, 2 or 3-dichotomously divided, with leaves on long petioles, rounded at the base ; rather showy, with a spicy odor ; woods ; in August and September ; vicinity of Boston.

H. tuberosus. L. Jerusalem Artichoke. The tuberous root resembles the real artichoke, and the plant, by a corruption of its Italian name, *girasole*, was called *Jerusalem Artichoke.* The plant was introduced into Europe from Brazil, and cultivated for its roots before the potato was known ; hence the value attached to this artichoke, forty years and more ago, by many who had emigrated to this country. At the present time, the roots are little used. The plant has become partially naturalized.

H. annuus. L. The Sunflower of the gardens. A coarse plant, large and tall, and bearing a huge disk of flowers from an inch to a foot in diameter. Within a few years the tubular florets of the disk have become ligulate, or strap-shaped, like those of the ray, and the whole flower is far more splendid and sun-like, and more of the flowers are turned towards the sun than away from it. The disk of the flowers, and the leaves also, contain an odorous substance, adhesive to the touch, like a resin. The seed is large and abundant, and sometimes raised for the feeding of poultry. It also contains a valuable oil, easily expressed from it, and a good substitute for sweet oil. The plant is a native of South America, whence it was introduced into England, and thence into the United States.

Rudbeckia. L. 17. 3. Cone Flower.

Named after O. Rudbeck, professor of botany at Upsal, in Sweden. It is a North American genus of about 15 species, of which 12 have been introduced into England. Only 1 species appears in this State.

R. laciniata. L. Often called Thimble Flower, from the length and size of the cone-part of the flower; stem 4 – 6 feet high, branching, smooth; leaves rough, lower ones pinnate or pinnatifid, of about 5 segments, and the upper nearly sessile, ovate; flowers large, with long and broad yellow ray-florets; woods and hedges; August. This is a handsome plant, and is introduced into some yards and gardens.

Coreopsis. L. 17. 3.

From the Greek for *bug* and *resemblance*, as the seed, by its flattish convex surface, rounded at one end, and with two little horns at the other, much resembles some insect. It is almost wholly an American genus, of about 30 species, 19 of which have been introduced into England; only 2 are found native in this State. The species are rather beautiful, and of some species the flowering continues for a long time. The species belong chiefly to the southern part of North America.

C. trichosperma. Mx. Tickseed Sunflower. Bears large, yellow flowers; stem about 2 feet high, with wing-shaped, glabrous, and opposite leaves; swamps; August and September.

C. rosea. Nutt. A new species found abundantly about the ponds in Plymouth.

Two or three species of Coreopsis are now cultivated in the more extensive flower-gardens, which have been introduced from the South.

Centaurea. L. 17. 3.

The *Centaur* is said to have cured the wound, inflicted on his foot by Hercules, with a plant of this genus, and hence the name.

It embraces nearly 140 species, most of which are natives of Europe, and the countries adjacent on the south and southeast; 77 have been cultivated in England or found native.

C. nigra. L. Black Knapweed. A coarse and troublesome weed in the pastures and meadows of England, and introduced and naturalized in a few places; Medford and Charlestown; July and August. Stem 2 feet high, branching and angular, with lyrate leaves below, entire leaves above, having purple solitary flowers.

C. cyaneus. L. Blue Bottle. A common ornamental flower in gardens, with funnel-form ray-flowers, blue, and whitish-blue; a common weed over Europe, and also used as a border-plant. *Loudon.* Partially naturalized.

C. benedicta. L. Blessed Thistle. Named for its supposed medicinal properties. It is common in gardens for ornament. A native of Spain.

Iva. L. 17. 4.

A North American genus of 5 species, found chiefly at the South; said to be named because the odor resembles that of the ancient Iva. *Loudon.*

I. frutescens. L. Marsh Elder. Highwater Shrub. Grows about salt marshes, fleshy, and rather shrubby, with nearly axillary branches; leaves roughish, serrate, ovate-lanceolate, 3-nerved; flowers small, green, drooping, in racemes.

Calendula. L. 17. 4. Marygold.

Named from the Latin for the beginning of a month, because it blossoms every month; about 30 species, belonging to Europe and the adjacent countries, and the Cape of Good Hope.

C. officinalis. L. Pot Marygold. A native of the South of Europe, and cultivated from time immemorial; used formerly in soups to give color and flavor, and for its supposed many vir-

tues, medicinal and soothing, all which, except the unpleasant odor and orange color, have disappeared in modern times. It is raised for its beauty, bearing single and double flowers, continuing to blossom for a long time, and having many varieties. It is less a favorite, perhaps, than formerly, but is highly worthy of a conspicuous place in every flower-garden. It is cultivated with great ease ; and its seeds, found only round the outside of the flower, are curiously heel-shaped, almost a semicircle when ripe.

Ambrosia. L. 19. 5.

The pleasant odor of the bruised leaves of some of the species led to the application of the name of the *food of the heathen gods* to this genus, some species of which are called in English by very different names. It is almost wholly a North American genus, of 8 or 10 species, only 3 of which are natives of this State. Most of the species are mere weeds.

A. elatior. W. Rag Weed. Wild Wormwood. Stem 2–4 feet high, with wand-like branches, and leaves bipinnatifid, smooth ; flowers in paniculate racemes ; the staminate flowers in long racemes looking like seeds, and supposed to be seeds by those who partially examine ; fertile flowers below in little aggregations ; bearing a small nut ; in waste places and over fields. The bruised leaves were formerly in popular use as an application to wounds and bruises. Plant very bitter, resembling common Wormwood. Flowers insignificant, and the plant a weed.

A. trifida. W. Under the same common names as the last, which it much resembles, though it is a much larger plant, hence often called *Giant Ambrosia*, with 3-lobed, serrate leaves ; a mere weed ; in fields.

A. heterophylla. Muhl. Grows on banks of streams, and less common than the others, with cauline, pinnatifid leaves, and lanceolate, sessile leaves ; long ciliate hairs on the petioles ; flowers in July.

Xanthium. L. 19. 5.

From the Greek for *yellow*, as the plant was anciently said to color the hair yellow ; a genus mostly European, of only 4 species, one of which has strayed to this country.

X. strumarium. L. Sea Burdock. Clott Burr. Stem erect, 3–6 feet high, purple, spotted, bristly, rough ; leaves large, cordate, serrate, hard and rough, 3-nerved ; fruit in an oval burr, armed with stiff spines or hooked thorns ; flowers axillary, insignificant ; grows on beaches near salt water, and widely over the country in light soils ; flowers in August. Another species, *H. spinosum*, has been found by Dr. Porter at Plainfield.

ORDER 189. STELLATÆ. The Madder Tribe.

Calyx divided into 4, 5, or 6 lobes, superior ; contains the 1-petalled corolla, rotate or tubular, with divisions the same in number as the calyx, and having as many stamens as the divisions of the corolla ; ovary inferior, 2-celled ; fruit a dry pericarp ; leaves in a whorl, of a stellate appearance, giving name to the order, without stipules ; stems square, roots giving a red dye, and flowers minute. The genus Rubia belongs to this order, and formerly gave name to a much larger family under the name of Rubiaceæ.

Rubia. L. 4. 1.

R. tinctoria. L. Madder. From the Latin for *red*, on account of the coloring matter of the roots ; a native of Southern Europe, and cultivated to great extent as a dyestuff ; little cultivated in this country. When eaten by animals, it tinges even the bones red, and the hardest part first. It has a trailing or climbing stem. *Loudon.* Cultivated in a few cases.

Galium. L. 4. 1. Bedstraw. Cleavers.

From the Greek for *milk*, as one species was used to curdle it. Near 80 species have been described, which are widely spread over the world, though most are indigenous to Europe ; 11 species belong to this State. They are mostly inconspicuous plants,

slender, some very rough, and some very smooth ; fruit of some smooth, of others very hispid. The plants seem of little use, except that the roots of some are employed by the aborigines to dye red.

G. tinctorium, L., and *G. boreale*, L., are both used as yielding from their roots a beautiful red.

G. asprellum. L. A very rough Bedstraw.

G. circæzans. Mx. Liquorice. So called from its taste resembling that of the true liquorice.

G. trifidum. L. Small Bedstraw. A small, scabrous plant.

G. aparine. L. From the Greek, *to lay hold*, because its fruit is covered with hooked bristles, by which it adheres to man and beast, for which the Greeks called it *man-lover*, and the English call it *cleavers ;* and some call it *goose-grass*, because geese feed on it ; formerly used in Sweden as a strainer for milk ; purifying to the blood, antiscorbutic ; roots dye red ; tinges the bones of birds that eat it ; sometimes a troublesome weed ; prickles of stem stand backwards, and leaves are 6 or 8 in a whorl, linear-lanceolate, mucronate.

G. obtusum. Big. Obtuse-leafed, having a slender, much branched, and diffuse stem, smooth ; leaves 4 in a whorl, linear-lanceolate, very obtuse ; fruit globular, smooth ; banks of Muddy Brook in Roxbury ; July. *Big.*

G. verum. L. Yellow Bedstraw. Conspicuous for its yellow flowers ; stem erect, slender, pubescent ; vicinity of Boston ; probably not indigenous here as it is in Europe.

G. lanceolatum. Tor. Popularly called *liquorice*, from the sweet taste of its stem and leaves. Stem erect ; leaves lanceolate, long, acuminate, and narrow ; flowers few, and fruit hispid.

G. triflorum. Mx. Three-flowered ; has largish leaves, small flowers, smoothish and procumbent stem ; fruit in a 3-rayed umbel ; woods ; July.

G. pilosum. Ait. Hairy Cleavers. Has purple flowers, and a rough stem, one foot high ; leaves 4, in a whorl, very hairy throughout, and fruit hairy ; woods ; July.

ORDER 195. ASCLEPIADEÆ. The Milkweed Tribe.

Persistent calyx of 5 segments ; monopetalous corolla, 5-lobed ; inferior, regular ; stamens 5, inserted in the base of the corolla, with 2-celled anthers ; follicles 2, or 1 by abortion ; plants commonly milky ; flowers umbelled, fascicled, racemed. The properties are generally acrid and stimulating, sometimes emetic ; the milky juice commonly bitter, and suspicious. The Cow-plant of India, the milk of which is used as food by the natives, belongs to this order. Only one genus of this order is found in this State.

Asclepias. L. 5. 2. Swallow-wort. Silkweed.

Named in honor of some Æsculapius, the name of many distinguished physicians. About 50 species of this genus are known, one half of which belong to North America ; 10 are credited to Massachusetts. The plants are not of great consequence.

A. Syriaca. L. Common Silk Weed. Grows about woods and fields, 2 – 4 feet high, with large oblong leaves, bearing its seed attached to a long silky pappus or seed-down. The young plant is eaten like asparagus ; a beautiful cape, made by sewing the silky down upon cloth, was presented at the Berkshire Cattle-show and Fair, and greatly admired.

A. incarnata. L. Distinguished for its umbels of beautiful purple flowers ; in low grounds.

A. quadrifolia. L. Has four leaves in opposite pairs, and is a delicate plant.

A. tuberosa. L. Pleurisy Root. Butterfly Weed. A hairy plant, with opposite and scattered leaves ; stem 1 – 2 feet high, bearing bright orange-colored flowers in the axils, and at the termination ; has valuable medicinal properties ; light sandy soil, easily cultivated, and much improved by cultivation, which, from its great beauty, it richly deserves. It rises to the height of 4 – 6 feet, and its umbels of flowers increase in number and improve in size and color. June. Bigelow's "Medical Botany."

A. viridiflora, Ph., *A. verticillata*, L., and *A. variegata*, L., are rare plants, as well as *A. purpurascens*, L. *A. pulchra*, found in the eastern parts of the State, is so named for its beauty.

A. phytolaccoides. Ph. Grows in wet grounds, and has large leaves like the plant it is named after ; 3 – 4 feet high ; few-flowered.

A. obtusifolia. Mx. Its name describes its leaves, oblong and obtuse, sessile and clasping ; stem 2 or 3 feet high, erect and smooth ; flowers large and purple ; sandy fields ; June. This, as well as other species, would repay the trouble of cultivation.

ORDER 196. APOCYNEÆ.

Persistent calyx, with 5 divisions ; corolla 1-petalled, regular, 5-lobed, inferior, supporting on its base the 5 stamens ; fruit a follicle, capsule, berry, or drupe ; white, milky juice in many species ; leaves opposite or whorled. Only one genus in this State, though the order contains many genera, and important plants.

Apocynum. L. 5. 1. Dog's Bane.

From the Greek *away* and *dog*, from its supposed offensiveness to that animal. The species are rather handsome plants.

A. androsæmifolium. L. Common Dog's Bane. Stem 3 – 5 feet high, smooth, much branched, with upper leaves opposite, smooth on both sides, and green on the upper ; white

flowers in nodding clusters in the axils of the upper leaves, and ends of branches ; seed in 2 long narrow follicles ; strong medicinal properties ; Bigelow's "Medical Botany." About woods and hedges and banks of streams.

A. cannabinum. L. Indian Hemp. Named from the hemp-like fibres of the bark, which the Indians twist into strings.

Stem smooth and branching, with narrower leaves than the other, which are downy on the under side, and paler than above ; flowers in terminal clusters ; borders of woods, and fields, and meadows ; June.

A. hypericifolium. Ait. John's Dog's Bane. Stem about 2 feet high, with oblong, narrow leaves, and small greenish-white flowers ; borders of woods.

The first two would be ornamental flowering plants for gardens ; rather herbaceous than shrubby.

Vinca *minor.* L. Periwinkle. Is a beautiful evergreen creeping plant, shrubby, bearing fine blue flowers for a long time, a native of Britain, and cultivated for its early flowers and carpet-like green, forming a beautiful covering for the sloping banks of terraces.

ORDER 197. GENTIANEÆ. The Gentian Tribe.

Stamens mostly 5, attached to the corolla, and equal to the divisions of the corolla, or of the persistent inferior calyx ; ovary single ; capsule or berry many-seeded ; leaves opposite, and commonly sessile, entire ; flowers axillary or terminal.

Gentiana. L. 5. 2. Gentian.

After the King of Illyria, Gentius, who is said to have discovered the medicinal properties of some of the species. Most of the plants are handsome.

G. saponaria. L. Soap Gentian. The leaves resemble some kinds of Saponaria, or Soapwort. Stem about 2 feet high,

erect, with clusters of purple or white flowers towards the summit, and smooth, nerved leaves ; plant of a light-green ; on low grounds ; September. Cultivated by the Shakers, at Hancock, for its medicinal properties.

This would be a fine plant for fall flowers in gardens.

G. pneumonanthe. L. Marsh Gentian. A smaller plant than the preceding, but much like it ; axillary flowers solitary ; swamps in the vicinity of Boston.

G. crinita. L. Fringed Gentian. Flowers delicate and beautiful, bluish, with the border cut into numerous segments like fringe, and growing on branches towards the top ; stem about a foot high ; wet places and damp soils ; September.

G. quinqueflora. L. Gentian. Another beautiful plant, about a foot high, with clusters of bluish flowers in the axils of the leaves ; abundant on hilly grounds in the western part of the State ; September and October.

The last two species would be great additions to the flowering plants of gardens, as they blossom in autumn, and bear abundance of flowers for a considerable time.

More than 60 species of this genus have been described ; more than 20 are cultivated in England ; 10 species are found in North America ; a wide-spread genus.

Villarsia. Gmelin. 5. 1.

V. lacunosa. Vent. Floating Heart. Spur Stem. Named after a French botanist, Villars ; a genus of aquatic plants, natives of both continents.

This species has very splendid petioles, bearing heart-shaped, floating leaves ; flowers small and white on the leaf-stalks ; vicinity of Boston. *Big.*

Menyanthes. L. 5. 1.

M. trifoliata. L. Buck Bean. Bears flower-stalks and leaves at short distances along a horizontal root ; flowers white in a conical cluster ; leaves finely ternate ; medicinal. Bigelow's

"Medical Botany." In marshy meadows, and on banks of streams and ponds ; May.

The leaves are bitter and used for rheumatism ; in Sweden, the plant is a substitute for hops. Only one species in the genus, a native of Europe and America.

SABBATIA. Adanson. 5. 1.

Named after L. Sabbati, a botanist of Italy of some distinction ; a North American genus of about 10 species, of which 4 have been introduced into England ; 2 are found in this State.

S. chloroides, Ph., and *S. stellaris*, Ph. Both found in the eastern part of the State, but are not of much importance except for their beauty ; the former being one of our most beautiful wild flowers. They have been found very difficult to cultivate.

HOUSTONIA. L. 4. 1.

Named after Dr. William Houston ; a genus confined to the United States, except one fine species in Mexico. Of the 8 known species, 2 belong to Massachusetts.

H. cærulea. L. Venus' Pride. The small delicate plant with fine bluish flowers, which spreads among the grass in meadows and low grounds in great abundance. On the alluvial meadows of the Housatonic River, are acres in succession of this flower ; blossoms in May.

H. longifolia. Willd. Long-leafed. A taller, larger plant, with purplish flowers ; hills and mountains ; June. Stem 6 – 12 inches high, branched, leaves an inch long.

ORDER 198. SPIGELIACEÆ. WORMSEED TRIBE.

Removed from the preceding order by Dr. Martius, and continued by others ; embraces American plants, chiefly of South America.

Spigelia. L. 5. 1.

S. Marylandica. L. Pink Root. The genus was named after Professor A. Spigelius, of Padua. This species has been cultivated by the Shakers. It is the well-known vermifuge, under the name of Carolina Pink; a handsome plant, with opposite, sessile leaves, and a terminal cluster of crimson flowers. For its medicinal properties, consult Bigelow's "Medical Botany." A native of the Southern States.

Another species, a native of the West Indies, has the same vermifuge character in a higher degree, and both, like opium, produce sleep, and sometimes dangerous symptoms.

ORDER 199. CONVOLVULACEÆ. The Bindweed Tribe.

Two floral envelopes, both 5-lobed, inferior, with 5 stamens inserted into the base of the corolla; stems often twining, smooth, and milky; rarely leafless; ovary simple, few-seeded.

Convolvulus. L. 5. 1. Bindweed.

From the Latin, *to entwine;* contains 150 species, chiefly natives of India and the tropical parts of America; some are mere weeds, some are quite beautiful, and some very useful.

C. sepium. L. Wild Morning Glory. Named specifically from its frequenting hedges and thickets; often called Great Bindweed; a beautiful twining plant; grows on low grounds, running over shrubs, and bearing large, whitish, and reddish blossoms, in June.

C. stans. Mx. Dwarf Morning Glory. About a foot high, erect, bearing one or two whitish flowers; sandy woods; July. Sometimes cultivated.

C. purpureus. L. Common Morning Glory. A beautiful twining plant, with fine, large, purple flowers; grows often 20 feet high; cultivated about houses for ornament; partially naturalized, but introduced from the warmer parts of North America.

C. arvensis. L. Field Bindweed. A troublesome vine, twining round plants in gardens and fields, with insignificant flowers ; June.

C. batatas. L. Sweet Potato. Sometimes cultivated in this State ; a southern plant of great value for its roots, which are a well-known luxury. A native of India and tropical America. It is the potato of Shakspeare, and those who mentioned this root before the common potato was cultivated in Europe. *Loudon.*

Scammony, a well-known stimulant and cathartic, is obtained from the roots of one species of this genus ; so diverse are the properties of the various species.

Cuscuta. L. 5. 2.

C. Americana. L. Dodder. A singular plant, being a leafless vine of a deep-yellow color, springing from a seed in the ground, soon twining round any plant it meets with, and attaching itself closely by teethlike projections, which pierce into the plant ; thus it draws nourishment, and obtains a support, and soon dies at the root ; it then sends out a shoot to fasten and twine in the same manner, and in all cases it twines from right to left. Where it is attached to other plants, it enlarges, and bears clusters of small white flowers ; on banks of streams, and in shady wet places ; June. This is the only species indigenous to North America. Deriving its support and nutriment from other plants, it is beautifully called a *parasite*, and is one of many parasitic plants.

C. Europæa. L. European Dodder. Described by Beck as parasitic on flax near Albany ; and occasionally to be met with in this State ; a native of Britain.

ORDER 200. POLEMONIACEÆ. The Greek Valerian Tribe.

Both floral envelopes inferior, with 5 divisions ; corolla bearing the 5 stamens inserted in the middle of it, and alternating with the segments ; ovary superior, 2-celled ; style simple, with a trifid stigma ; capsule 1-celled, 3-valved ; leaves simple or compound, alternate or opposite.

The plants of this order abound in America out of the torrid zone ; not possessed of useful properties ; some have beautiful foliage and flowers.

Polemonium. L. 5. 1.

Named from the Greek, for *war*, because an ancient plant of great excellence was the cause of war between two kings, but now unknown, while the name is given to other well-known plants. *Loudon.*

P. reptans. L. Greek Valerian. A handsome plant, cultivated for its beauty ; leaves pinnate, in about 7 pairs of wings ; flowers nodding ; a native of North America.

Phlox. L. 5. 1. Lychnidea.

From the Greek, for *flame*, from the redness of the flowers, to which the name was originally applied. About 20 species have been described, all but one or two natives of North America, but none indigenous to New England. Very ornamental plants ; several species are found in many gardens, and 17 have been introduced into England.

While the corolla is a slender tube with a spreading border, it is always more or less curved.

P. paniculata. L. Bears a corymb of panicled, purple, or reddish flowers, with a short calyx, and a stem 2 – 3 feet high ; the first known in our gardens. Var. *alba*, has fine white flowers.

P. pyramidalis. L. Has its panicle of bluish-purple flowers in a pyramidal form.

P. maculata. L. Has a roughish, spotted stem, and pale-purple flowers. One variety, raised from seed, has white flowers.

ORDER 207. PRIMULACEÆ. The Primrose Tribe.

Both floral envelopes divided into 5 divisions, rarely 4, inferior ; stamens equal in number, and opposite to the sections of the

corolla, and standing upon it ; ovary inferior, and capsule opening by valves ; leaves commonly opposite, whorled or scattered.

Grow in the northern parts of both continents ; beautiful plants, often cultivated.

Primula. L. 5. 1.

Flower very early in the spring, which fact gives rise to the name, *Prime-rose*, as if first of all the flowers ; small Alpine plants cultivated for their early blossoms.

P. veris. L. Cows-lip Primrose. Named the Primrose of Spring, a common border plant, with fine reddish yellow flowers ; native of Britain.

P. auricula. L. From the Alpine parts of Italy and Switzerland ; flowers yellow and red, but by cultivation there is great variety in the flowers and leaves.

The English have nearly 20 species cultivated or indigenous.

Dodecatheon. L. 5. 1.

From the Greek, *twelve divinities*, and most absurdly applied to any plant, especially to an American genus. *Loudon.* Two species described ; one has often been cultivated within a few years, introduced from the Southern States, and named in honor of Dr. Mead.

D. Meadia. L. False Cowslip. American Cowslip. Corolla wheel-form, with long closely reflexed segments, giving it a fine and singular appearance ; flowers in an umbel, on a scape or stalk with radical leaves. There are two principal varieties of this beautiful plant.

Anagallis. L. 5. 1.

A. arvensis. L. Scarlet Pimpernel. From the Greek *to laugh*, because, as a medicine, it raises the spirits by improving the action of the liver, the supposed, as well as real, source of so much bile, good or bad.

This species is found in the vicinity of Boston ; small, delicate,

with bright scarlet flowers, which close on the approach of foul weather, and do not expand in a damp atmosphere. For this reason, the common name in England, where it is indigenous, is the *Poor Man's Weatherglass.*

Hottonia. L. 5. 1.

H. inflata. L. Water-feather. Named after Professor Hotton, of Leyden; a singular genus; aquatic, whorled, and much divided in its leaves, which grow near the surface; flower-stalks arranged like an umbel; swollen greatly between joints, and hollow within; a contrivance probably to sustain the flowers, and expose them to the air and sun. Near Boston and New Bedford.

Samolus. L. 5. 1.

S. Valerandi. L. Water Pimpernel. Named from its supposed efficacy in curing all diseases of swine, from words which mean *salutary to pigs.* Grows beside ditches or brooks, in the vicinity of Boston, with small white flowers and stem a foot high; native of Britain.

Glaux. L. 5. 1.

G. maritima. L. Black Saltwort. From the Greek for *glaucous*, and its loving the sea, about salt marshes; stem 4 or 5 inches high, very leafy; leaves opposite, roundish, smooth, fleshy; minute, reddish-white flowers; no corolla, and a bell-form calyx.

Lysimachia. L. 5. 1. Loosestrife.

The English name is a translation of the Greek original, anciently supposed to quiet restive oxen; or after king Lysimachus of Sicily. *Loudon.* The species are natives chiefly of Europe and North America. In the latter, about a dozen species have been found; 5 are credited to this State, and are widely diffused.

L. capitata. Ph. Inhabits swamps; flowers capitate.

L. racemosa. Lmk. Has a long terminal raceme, and stem erect and smooth; in low grounds.

L. quadrifolia. L. Whorls of 4 or 5 leaves ; low grounds.

L. ciliata. Mx. Has ciliate petioles ; hedges and banks.

L. hybrida. Mx. Very like the preceding ; moist grounds. All are rather handsome wild plants, with small yellow flowers.

Trientalis. L. 7. 1.

No reason assigned for the name, *a third part ;* only 2 species, *T. Europæa*, and the one native in this country.

T. Americana. Ph. Chick Wintergreen. A small, beautiful plant, not green through winter, having a cluster of leaves at the summit with the flowers ; blossoms with white stellate petals. It is little different from the European ; grows in open woods, and blossoms in May. It would form a handsome plant for gardens.

ORDER 208. LENTIBULARIÆ.

Persistent, inferior, divided calyx ; irregular, 2-lipped, monopetalous, hypogynous corolla, with a spur ; stamens 2, inserted at the base of the corolla ; ovary 1-celled, style 1 ; capsule 1-celled, many-seeded ; growing in water or marshes ; leaves radical and simple, or compound, similar to roots, bearing little vesicles.

No known valuable properties ; most abundant within the tropics.

Utricularia. L. 2. 1. Bladderwort.

Named from the vesicles on the leaves. Seven species credited to Massachusetts. The vesicles become filled with air, and raise the plant in the spring in the water so that the flower-stalk may rise above the water, and the blossom be fertilized and the fruit perfected. The vesicles contract in the latter part of the season, and the plant sinks.

U. vulgaris. L. Common Bladderwort. In ponds, floating ; scape 5 – 9 flowered ; spur incurved ; August.

U. cornuta. Mx. Leafless Bladderwort. Grows on wet rocks

about ponds ; scape erect, rigid ; August. Of the other species, *U. gibba*, Gron., with small yellow flowers, has been found in the western part of this State. *U. inflata*, Walt., and *purpurea*, Walt., are not uncommon ; *U. striata*, Le Conte, occurs near Connecticut River. *U. resupinata*, Greene, was first detected by Dr. B. D. Greene in ponds in Tewksbury, and has since been found by the side of the ponds in Plymouth.

ORDER 210. OROBANCHEÆ. The Broomrape Tribe.

Calyx 1-leafed, divided, peristent ; corolla commonly 2-lipped, irregular, inferior ; stamens 4, 2 longer than the others ; style 1, stigma 2-lobed ; on a fleshy disk sits the ovary ; fruit capsular ; leafless, parasitic plants, growing from the roots of other plants ; stems scaly, whitish or brownish.

This order is found chiefly in the middle and northern parts of Europe and Asia, North of Africa, and North America ; properties of no great value.

Orobanche. L. 13. 2. Broomrape.

From the Greek, for *vetch* and *to strangle*, because, being parasites, they often destroy the plants they feed on. Some of the species in Europe fasten upon the roots of broom, furze, clover, and leguminous plants, and destroy them. In Flanders, *O. major*, L., has prevented the culture of clover in some places. *Loudon.* The plants of this genus are found in the Middle and South of Europe, North of Africa, and North America. About 4 species are found in this country, and 2 in this State ; singular and curious plants, found in woods and moist grounds.

O. Americana. L. Cancer Root. Because it has been used as a remedy for this dreadful disease. Stem simple, covered with scales ; flowers in a spike ; brownish yellow ; blossoms in July. Common in woods of beech, in Berkshire County.

O. uniflora. L. Small Cancer Root. Stem 1 inch to 4 or 5 inches high, 1-flowered, sometimes 2, pubescent ; woods ; June.

These plants seem to be astringent and acrid, and offensive to animals.

Epiphagus. Nutt. 13. 2.

Was taken from the preceding genus by Mr. Nuttall; bears some flowers, which are not fertile.

E. Americana. Nutt. Cancer Root. Beech-drops. Stem often a foot high, leafless, branched, with small scales; flowers small, alternate, fertile ones deciduous and smaller, striped; in beech woods; July, August.

The plant has a drab appearance, and the bark appears to perform the functions of leaves; abundant in the western parts of the State.

ORDER 211. SCROPHULARINEÆ. The Figwort Tribe.

A numerous and important family of plants, widely spread over the world, from the hottest to the coldest regions where vegetation can live. In North America, the species are about $\frac{1}{3\,6}$ of the flowering plants, and in Europe $\frac{1}{2\,6}$.

Calyx divided and permanent, 1-leafed; corolla 1-petalled, inferior, deciduous, irregular, or very rarely regular; stamens sometimes 2, usually 4, and then 2 are commonly longer, sometimes all are equal in length; ovary superior, 2-celled, many-seeded; style 1, with a 2-lobed stigma; leaves generally opposite.

Plants generally to be suspected; many are acrid, bitter, and produce dangerous symptoms on the human system; some are healthful, some have valuable medicinal characters.

Scrophularia. L. 13. 2. Figwort.

Calyx 5-cleft; corolla subglobose, turned backwards, shortly 2-lipped. Supposed in former times to be a specific for scrophulous tumors, because its roots remotely resemble such swellings; a genus of about 30 species, chiefly in the South of Europe, 2 only in this country, and 1 in this State. About 25 species introduced into England.

S. Marylandica. L. Stem 3 or 4 feet high, square, not sharp on the corners, rather smooth, with large, opposite, and heart-shaped leaves, and small, roundish, capsule-like flowers on branching flower-stalks, and of a brownish color within. The form of its calyx, like a globose cup open at the top, is very peculiar. Grows along woods and in fields ; June.

ANTIRRHINUM. L. 13. 2. Snap-Dragon.

From the Greek, *similar to a nose*, from the snout-like form of the flowers ; a genus of about 70 species, chiefly indigenous to the South of Europe, and the opposite shores of Africa ; 2 species natives of this State, and some others introduced.

A. elatine, L., and *A. Canadense*, L. Flax Snap-Dragon, or Toad-flax, scarcely deserve a notice here ; small, mere weeds, bluish-white and blue flowers ; July.

A. linaria. L. Flax-like. Has a foliage much like that of flax, with many yellow spurred flowers in a spike. It was cultivated as an ornamental flower ; being hardy, it soon became naturalized about gardens, and spread into the fields ; a showy plant, 2 feet high. In some of the States, it has become a very troublesome weed ; blossoms from June to October.

A. triornithophorum. L. Three Birds. (Greek, *bearing three birds.*) So named from the flowers, which are clustered in threes, like three little birds on one stem ; is cultivated for its beauty.

A. majus. L. Garden Snap-Dragon. Presents several varieties, the scarlet, spotted, two-colored, and common, all which are beautiful flowers.

MIMULUS. L. 13. 2. Monkey Flower.

From the Greek, for an *ape* or *monkey*, as the flowers are thought to resemble the head and mouth of that animal ; rather handsome plants ; a small genus, of which 4 species belong to this country and 2 to New England.

M. ringens. L. A beautiful plant with blue flowers, common about wet places ; flowers in August. The resemblance of the ringent flower to the mouth of a *grinning monkey* originates the specific name.

M. alatus. L. Closely related to the last, and ordinary observers would not notice any striking difference.

GRATIOLA. L. 2. 1. Hedge Hyssop.

From the Latin for *grace* or *favor*, on account of its supposed high medicinal virtues. The two species in this State, *G. Virginica*, L., and *G. aurea*, Muhl., have yellow flowers, on an erect stem, about a foot high ; grow about ponds, and inundated sandy banks ; flower in August ; of no known use.

CHELONE. L. 13. 2.

From the Greek, for *tortoise*, to which the helmet of this genus has been fancifully compared. *Loudon.* A North American genus of a few species.

C. glabra. L. Snake Head. From the resemblance of the large whitish and inflated corolla to the mouth and head of a snake. Stem square, 2 or more feet high, with opposite, sleek, lanceolate, toothed leaves ; rudiment of a fifth stamen often in the flower ; low grounds and wet situations ; August.

DIGITALIS. L. 13. 2.

D. purpurea. L. Foxglove. A native of hedges in Britain, attractive for the great beauty of the flowers arranged in a long spike, and both white and purple ; now common in gardens for its beauty ; named from the resemblance of the flowers to a *thimble*, from the Latin for that article. As a medicine it is sedative and diuretic, diminishes the frequency of the pulse, and, in any considerable quantity, is a violent poison.

DRACOCEPHALUM. L. 13. 2. Dragon's Head.

Both names have the same meaning, and are founded on the same supposed resemblance. Several species belong to this

country, but most to Siberia; about 20 species have been introduced into England; generally ornamental plants. The species often called *Lady of the Lake* is now common in gardens; branched, long dense spikes of beautiful flowers, continuing long in blossom. Had it been named *Lady of the Gardens*, the designation would have been very appropriate, if not so poetic.

Limosella. L. 13. 2. Mudwort.

From the Latin for *mud* and *seat*, the usual place of growth.

L. subulata. Ives. A very small flowering plant; stem an inch high, bearing one flower with radical linear leaves, as long as the stem or scape; corolla short, bell-form, 5-cleft, and unequal, bluish-white; August. Nantucket.

L. tenuifolia. Nutt. Is also found in this State.

Lindernia. L. 13. 2.

From F. Lindern, a botanist of Sweden; a genus of few species, all belonging to North America except one; some of the species are rather beautiful; 2 stamens.

L. pyxidaria. Ph. Has its specific name from the resemblance of its foliage to that of Box; stem small, square, smooth, with oblong, ovate leaves, dentate and sessile; flowers axillary, pale-blue; August. Common to Europe.

L. dilatata, Muhl., and *L. attenuata*, Muhl., often called False Hedge Hyssop, both grow on inundated banks; flower in August; of little consequence.

Penstemon. L. 13. 2.

Besides the 4 stamens, this genus has a long, distinct rudiment of a fifth, hence its name from the Greek, *five* and *stamen;* a North American genus of a dozen species, most of which have been cultivated in England; one species common at the North.

P. pubescens. L. Beard-tongue. A fine plant, 2 or more

feet high, with pubescent stem, and lanceolate, clasping, sessile, serrulate leaves ; flowers in a terminal panicle or raceme, pale-purple or bluish ; hills and banks and valleys ; June ; a beautiful plant for borders.

GERARDIA. L. 13. 2. False Fox Glove.

In honor of John Gerarde, an early English botanist ; a beautiful genus of plants almost exclusively belonging to America ; difficult of culture in England, but "deserving any pains necessary to their successful cultivation." *Loudon.* More than a dozen species have been described.

Six species are spread over the State in open woods ; three, *G. flava*, L., *G. glauca*, Eddy, and *G. pedicularia*, L., are tall and large, 2 – 4 feet high, with prominent yellow flowers, and fine herbage, and are great ornaments to the woods in August and September. The others, *G. purpurea*, L., *maritima*, Raf., and *tenuifolia*, L., are small plants with beautiful purple flowers, and of these, *G. maritima*, Raf., is found in salt marshes. *G. pedicularia*, L., has a foliage like that of Lousewort, from which it is named ; it is a fine plant 2 feet high, and with the other large species would be a great addition to the stock of autumnal flowers.

VERONICA. L. 2. 1. Speedwell.

Supposed by some to be named from the Celtic word for *botany*. An extensive genus, chiefly in Europe, containing near 80 species, only a few common to this country and Europe, and a few indigenous to this country alone. About 60 species have been introduced and cultivated in England, and 10 more perhaps are natives of Britain ; 8 species belong to this State.

V. serpyllifolia. L. Spreads over the grassy fields and streets in moist and dry soils, and flowers for months ; a short, humble plant, of beautiful flowers. Introduced.

V. officinalis. L. Common Speedwell. Formerly had some reputation in medicine ; branching, opposite, and rough leaves, pale-blue flowers ; woods and fields ; May to August.

V. scutellata. L. Marsh Speedwell. Grows about wet places.

V. anagallis. L. Water Speedwell. Flowers purple ; in brooks.

V. agrestis, L., and *V. arvensis*, L. Small weeds about gardens ; introduced, as probably the two preceding were ; to which, *V. peregrina*, L., of no more account, may be added.

V. beccabunga. L. Brookline, from the German name of the plant (bach, *brook*, and bunge, *bunch*), put into a Latin form ; seems indigenous ; a rather handsome plant, about sluggish waters, with beautiful blue flowers, and rather fleshy, mucilaginous stem and leaves, and used sometimes for medicinal purposes.

Several beautiful species have been introduced, and are cultivated in the larger flower-gardens.

Leptandra. Nutt. 2. 1.

Taken from the preceding genus by Mr. Nuttall ; only one species certainly known. The capsule is ovate and acuminate, not obcordate, as in the other ; named from its long and slender stamens.

L. Virginica. Nutt. Culver's Physic. Culver Root. Grows in alluvial meadows ; stem 2 – 4 feet high, erect, 4 or 5-sided, with whorled, lanceolate leaves, and a long, dense spike of white flowers ; July. Root bitter and offensive ; its cathartic power I have many times tested. A handsome plant, easily cultivated.

Schwalbea. L. 13. 2.

S. Americana. Willd. A simple, pubescent plant, with lanceolate leaves, and terminal raceme of alternate flowers ; has been found, by Dr. Greene, at Plymouth. *Big.*

ORDER 212. RHINANTHACEÆ. The Rattle Tribe.

Corolla monopetalous, personate, with a divided and leafy calyx, inferior, and the 4 stamens inserted in the side of the corolla, 2 of them shorter than the other pair ; ovary superior, 2-celled, 2-seeded ; style one ; flowers axillary, and leaves opposite.

Grow in the temperate parts of both continents ; not a very large assemblage of plants ; properties not of much interest.

Rhinanthus. L. 13. 2.

From the Greek for *nose* and *flower*, as its compressed corolla resembles remotely the snout of an animal. Few known species.

R. crista-galli. L. Yellow Rattle. The only species in this country, rare ; a foot high, branching, smooth ; opposite, cordate, rough leaves ; calyx large, inflated ; corolla yellow, much longer than the calyx ; meadows ; Plymouth ; July. *Big.*

Bartsia. L. 13. 2.

Named by Linnæus, after his friend Dr. Bartsch ; a singular genus of plants, "of difficult cultivation" ; several species in this country and in Europe.

B. coccinea. L. Painted Cup, about a foot high, with alternate leaves, and a cluster of flowers at the summit, which have bright-scarlet floral leaves or bracts, generally 3-cleft, which give much beauty to the flowers ; borders of woods ; June.

This seems to be very properly separated by Mr. Nuttall, to form the genus Euchroma.

Melampyrum. L. 13. 2. Cow Wheat.

From the Greek, for *black* and *wheat*, because its seed, which resembles wheat, gives a black color to bread. Only a few species in Europe, and 2 in the United States.

M. Americanum. Mx. Grows in open woods in light soil,

not a foot high, with a few axillary, yellowish flowers, and lanceolate leaves ; stem often branched at the upper part ; June.

PEDICULARIS. L. 13. 2. Lousewort.

The common name is a translation of the botanical, and arises from the supposition that sheep become lousy by feeding on it, while the poor pastures in which it grows is the probable reason of their being covered with vermin. *Loudon.* About 40 species are described, of which about a dozen belong to North America, and 2 to New England. The plants are somewhat showy, with regular, but much-cut leaves. A dozen species have been reared in the English gardens.

P. Canadensis. L. Common Lousewort. Grows in open woods, and on sunny hills ; is extirpated easily by cultivation ; a short, somewhat prostrate plant, growing in clusters, with yellow or orange-colored flowers in short, dense spikes ; leaves lanceolate, pinnatifid, toothed or notched ; May.

P. pallida. Ph. Tall Lousewort. Stem 1 or 2 feet high, branched, with pubescent lines ; leaves pinnatifid, toothed, and crenate ; flowers large, pale-yellow ; capsule short and broad-ovate ; low grounds ; September.

ORDER 213. SOLANEÆ. THE NIGHTSHADE TRIBE.

Calyx inferior, persistent, 5-parted, rarely of 4 divisions ; corolla 1-petalled, cleft like the calyx, regular, rarely irregular or unequal ; stamens equal in number to the segments of the corolla, and inserted on it ; ovary superior, 2 or 4-celled ; leaves alternate, undivided or lobed.

This order contains many important plants ; some healthful, some very poisonous, some beautiful ; found chiefly within the tropics. There are few species indigenous to New England ; many, however, are cultivated, or have been naturalized. General properties are cathartic, discutient, emetic, and antiscorbutic ; great diversity of properties.

Solanum. L. 5. 1.

Supposed by some to be derived from the Latin, *to comfort ;* a very doubtful etymology ; abounds in Mexico and Peru ; more than 140 species have been described ; only a few species are natives of the western temperate zone ; 2 are common in New England ; nearly 60 introduced into England.

S. dulcamara. L. Bitter-sweet. Possesses in its roots the taste implied in its name ; common about houses and waste places, wet or dry, and bears bright red berries in clusters ; medicinal ; about 2 feet high, but, when trained, grows 8 or 10 feet. Bigelow's "Medical Botany." Supposed to be introduced from England. Shape of the leaves lyrate or fiddle-form.

S. nigrum. L. Black Nightshade. A less common plant, in waste places, about fields ; berries black ; has the characters of a poisonous plant ; flowers nodding, white ; 2 or 3 feet high ; August. A native of this country as well as of Europe.

S. tuberosum. L. Potato. The root is *tuberous*, hence the botanical name. Potato seems to be a corruption of the Spanish *batata*, by which name it was introduced into Spain from Peru about 1550. The French and Italians called it *apple of the earth.* The plant was introduced into England by Sir Walter Raleigh, or those who returned with him from Virginia in 1586, and called *Virginia Potato.* It has been found in its native soil only a few times by the later botanists, who have so extensively examined the various parts of America. In 1818, Dr. Baldwin, a distinguished botanist of this country, saw it growing in its native state near Monte Video, on the river La Plata. *Darlington.* Humboldt also found it in South America. It is a small, slender plant bearing quite small tubers. Cultivation has made a great change in it, and vastly improved it. Slowly it came into use, and was considered as a root more fit for cattle and hogs than for man. It was probably a poor variety, some of which, now cultivated, are scarcely palatable. In the latter part of the last century, when it had become extensively used, it was regarded by many

old people as scarcely fit food for respectable people. "The potato is now considered as the most useful esculent that is cultivated. It is at the same time the most universally liked; it seems to suit every palate. So generally is it relished, and so nutritious is it accounted, that on many tables it now appears almost every day in the year." *Edin. Encyc.* The use of the potato has made a great change as to some articles of food. The plant is likely to go on in improvement. A rather sandy soil appears best fitted for producing those most excellent for the table. To secure the continuance of a good variety, it is necessary to plant it in grounds separate from others.

The varieties of the potato need not enumeration. Those called the Pink-eye, the English White, Lady-finger, &c., have proved pretty durable varieties. The Rohan potato is attracting much attention at this time, from its size and the abundance of its yield, being several times that of any other yet known.

The principal part of the Potato root is starch, great quantities of which are manufactured from it in farmhouses for domestic use. Its starch differs little from that of the wheat, and, besides its "use in the laundry, and as a hair-powder, is considered an equally delicate food as sago or arrow-root." *Loudon.* Though starch is easily converted by a chemical process into sugar, the fermentative process is too rapid and strong to admit of the production of sugar from it, at least in any considerable quantity.

S. lycopersicum. L. Tomato. The specific name is from the Greek, for *wolf* and *peach*, from the beauty of the fruit and its deceitful value. *Loudon.* The estimate of the fruit seems to be much changed. It has for some time been "one of the most important articles used in Italian cookery," and in England and this country its cultivation has greatly increased, and it is now a very agreeable and important vegetable. Its peculiar acid seems to be most grateful to the stomach, and in many instances has averted the evils of dyspepsia and kindred affections. A professed extract of the fruit has been prepared for use, when the fruit cannot be obtained. The danger of imposition upon the public in all such cases need only be adverted to. The fruit, plucked before it is ripe, is often pickled. The preservation

of the fruit in some way, by which its properties should not be essentially altered, is a great desideratum for dyspeptics. The more successful method for securing the end will probably be the forced cultivation of the plant in hot-houses. A native of South America, and often called *Love Apple*.

S. melongena. L. Egg Plant. A native of Africa, Asia, and America, and its specific name is from the Arabian word by which it is known. Cultivated in Europe and our country for its fruit, which is used as food and a condiment. Some varieties are cultivated for ornament, as they bear a beautiful white fruit of the size and color of a hen's egg, on a small, delicate plant.

S. pseudo-capsicum. L. Jerusalem Cherry. Winter Cherry. A small ornamental shrub, beautiful in form and color, and bearing a few large cherry-looking berries.

CAPSICUM. L.

C. annuum. L. Red Pepper. The known pepper of the gardens, so grateful as a condiment. The finely pulverized red covering of the fruit, which is the powder of *C. baccatum*, L., forms a substitute for Cayenne Pepper. As a pickle, the green fruit is considerably used and valued. Our garden plant is from India. The genus is named from the Greek, *to bite*, from the biting effect of the seed and fruit in the mouth.

PHYSALIS. L. 5. 1. Ground Cherry. Winter Cherry.

From the Greek, for *bladder*, from the inflated calyx inclosing the fruit ; chiefly an American and Southern genus ; some species are shrubby.

P. obscura. MX. Common Ground Cherry. Stem prostrate, spreading, pubescent ; leaves broad-cordate, nearly solitary, coarsely toothed ; flower single, nodding, pale-yellow, with purple spots at the base ; hills ; August.

P. Pennsylvanica. L. Also herbaceous, branched, with ovate leaves ; a foot high ; flowers yellow, and berries red ; road-

sides ; July to September. Both species grow in the vicinity of Amherst College.

P. alkekengi. L. Winter Cherry. A rather handsome plant, cultivated for ornament, with sour and rather bitter berries ; a native of the South of Europe, where the berries are " eaten as a common fruit " ; formerly esteemed aperient and detergent. *Loudon.*

Hyoscyamus. L. 5. 1.

H. niger. L. Henbane. A poisonous plant, sometimes cultivated for its medicinal properties ; a native of Britain, and the genus belongs to the eastern continent. The genus is named from the Greek for *hog* and *bean*, from the notion that hogs eat the poisonous fruit with safety ; a pubescent, fetid plant, not eaten by quadrupeds ; naturalized in some places. Bigelow's " Medical Botany."

Datura. L. 5. 1.

Name altered from the Arabic ; only a few species, widely spread over the earth.

D. stramonium. L. Thorn Apple. Found occasionally by roadsides and in waste places, and growing 2 or 3 feet high ; stem large, strong, branching by forks at the top, bearing long funnel-form flowers, white, or bluish-white, with a plaited border. A variety called *D. tatula*, L., altered from the Persian name *Datula*, for the plant, and by some considered a distinct species, has a purple stem, much dotted. The seeds of the Stramonium were introduced into England from Constantinople, and the plant is now common in that country. A few years ago this plant was considered as a specific for asthma ; it has followed the fate of all specifics, though it has not lost its valuable properties, even in that disease, any palliative of which is greatly to be desired. The plant, like the preceding, has an offensive odor, and is poisonous ; the seeds are a deadly poison. Bigelow's " Medical Botany."

Nicotiana. L. 5. 1. Tobacco.

Named after Nicot, ambassador from France to Portugal in 1560, who received the seeds by a Dutchman from Florida. The common name *tobacco*, is derived from that of a province of Mexico. Fourteen species, all that have been described, have been introduced into England, nearly all of which belong to South America. The aborigines were found to cultivate this plant over the warmer parts of the country. Two species are raised as tobacco, but one is most common and far preferable.

N. tabacum. L. Cultivated in rich soil, called *Virginia Tobacco.* It would be a curious plant were it not for its offensive smell, nauseous taste, and poisonous qualities. Of all the plants indigenous to America, very few are more deadly poisons than tobacco. The use of it as a luxury, and as a necessary from habit, is one of the strangest facts in the history of man, as the plant is offensive at first to nearly all who begin to use it, and as the natural repugnance of our system must be overcome by severe, and repeated, and continued effort. Must not the use of so poisonous a plant have a deleterious effect upon most constitutions ? Is it not probable, that no small portion of the ill health of those who use tobacco, is to be traced to the power of this noxious weed taken in so often repeated doses ? The writer believes himself to have been a great sufferer from its use. At any rate, after more than twenty years' use of tobacco, in smoking or chewing, or both, and suffering under dyspepsia and its attendant pains and evils, the entire disuse of tobacco for more than five years, has been followed by the renovation of a wasted constitution, and the return of excellent health and strength. Various others, who have liberated themselves from the slavery of the habit, have experienced the same beneficial results. In no known case has the disuse, even to total abstinence from the nauseous weed, been followed by any pernicious consequences.

In any of the modes of using tobacco, the want of neatness of the habit deserves consideration. To the breath it gives the vilest perfume, the most nauseating odor, which none but the user and the tobacco-worm can endure. The teeth it makes offensive, and

perhaps hastens their decay. If you wish to produce the most deadly sickness with retchings, which seem like the giving way of nature, give a person a dose of the juice of tobacco.

It is a stimulant, and a powerful narcotic ; any considerable dose produces most alarming symptoms.

The virulence of the poison in tobacco has been ascertained by direct experiments of Franklin, Brodie, and Mussey. A drop or two of the oil of tobacco applied to the tongue of strong and healthy cats, produce convulsions, agony, retching, and death in a few minutes. Upon a dog, and some other animals, similar dreadful effects were produced from the oil by Dr. Mussey. A small quantity of the decoction of tobacco leaves produces most serious effects upon the human system, and upon animals, when taken internally, or applied to the surface. Death has sometimes soon followed such applications. Dr. Long has reported the effects of applying the oil from a tobacco pipe for the cure of a ringworm at the root of the nose. "Immediately loss of sense, locking of the jaws, and deathlike countenance followed. Recovery from the ill effects has not been complete ; from a healthy child, she has continued sickly to this time," as Dr. Long informed me a few days ago. The poison was applied in April, 1834. Other similar facts are on record. To the teeth, the appetite, and the stomach, the nostrils and throat, the use of tobacco is injurious. The waste of money, too, for so dirty a gratification, is prodigious and astonishing.

"It is doubtful whether all the benefits which have accrued to Europe from the discovery of America, have not been counterbalanced by the introduction of this universal luxury [poison], produced at the expense of human liberty, and of a soil which could otherwise be employed in augmenting the necessaries of life, independent of the diseases inseparable from the use of so powerful a narcotic." *Nuttall.*

It is cultivated to considerable extent in some parts of the State.

Lycium. L. 5. 1.

L. barbarum. L. Matrimony Vine. Introduced from the East, and named from Lycia, the province where one of the

species flourished ; a beautiful shrubby plant, easily trained, with fine foliage, and delicate whitish and purple flowers, continuing a long time to blossom. Its stamens vary from 4 to 5, but its place is with those which have 5. A native species is found in the Southern States.

NICANDRA. Adanson. 5. 1.

Named in honor of a Greek physician, Nicander, by Adanson, who removed it from the Linnæan genus ATROPA.

N. physaloides. Pers. Found in the vicinity of New Bedford ; stem branched, 2 or 3 feet high, bearing solitary, pale-blue flowers, in the axils of the leaves ; seeds in a fleshy berry ; a native of Peru ; introduced.

The Indians of Peru used the berries for the relief of the gravel and other urinary diseases.

ATROPA. L. 5. 1.

Has its name from one of the Fates, as its deadly poison does the work of Atropos in cutting short the lives of men.

A. belladonna. L. Deadly Nightshade. Its specific name, *fair lady*, is derived from its use, as some suppose, in making the skin smooth and fair ; found in Britain ; rarely cultivated in this country ; a deadly poison ; used in medicine for certain purposes ; wonderfully dilates the pupil of the eye.

VERBASCUM. L. 5. 1. Mullein.

Its name is a corruption of another, given on account of the thick woolly or beardlike covering of the leaves and stem ; chiefly natives of the South of Europe.

V. Thapsus. L. Common Mullein. Named from the Isle of Thapsos, where it is indigenous ; a well-known plant of the roads and neglected fields ; its yellow, spiked flowers would make it very respectable in appearance, were it not for the bad company it has kept, and the bad reputation it has fastened on itself. The plant is mucilaginous and emollient, and the leaves, boiled in milk, have been used as a great relief to the piles ; naturalized.

V. blattaria. L. Garden Mullein. This plant is named from its supposed power of driving away the *blatta* or *cockroach.* It is a rather handsome plant of the gardens, cultivated for its flowers ; smooth ; flowers whitish ; introduced from Britain ; it has wandered, in a few instances, into the roads or fields, and propagated itself.

A few species are said to be beautiful plants, and near twenty have been introduced into England.

ORDER 215. PEDALINEÆ.

Calyx in 5 nearly equal segments ; corolla of 1 petal, irregular, limb 2-lipped, and swollen towards the upper part of the tube ; stamens 4, 2 long and the other pair short ; flowers axillary ; leaves opposite.

This order is named from Pedalium, a genus of the East Indies, so called from its hard and prickly fruit.

Martynia. L. 13. 2.

Named in honor of J. Martyn, a distinguished English botanist ; found chiefly within the tropics.

M. proboscidea. L. Unicorn Plant. From the long, curved, proboscis-like termination of the fruit-vessel ; sometimes cultivated in gardens ; a low plant, with large leaves, and large yellow flowers, and of nauseous, offensive odor ; a native of the Southern States.

Sesamum. L. 13. 2.

S. Indicum. L. Oily-grain. Introduced from the East, and cultivated occasionally in gardens. Upper leaves undivided, the lower 3-lobed, serrate ; flowers reddish-white ; seeds used in cookery, contain much excellent oil. Leaves emollient.

ORDER 220. VERBENACEÆ. The Vervain Tribe.

Calyx tubular, inferior, persistent ; corolla 1-petalled, tubular, deciduous ; stamens 4, rarely 2, one pair commonly shorter than

the others ; ovary superior, 2 or 4-celled ; style 1 ; leaves generally opposite.

The plants are common in the tropics, but not in the northern temperate zone ; generally of little use.

Verbena. L. 13. 2. Vervain.

The name in Latin and English is said to be from the Celtic name of the plant. Anciently some species of this genus had great reputation, but all that seems to be irretrievably lost. About 20 species have been described, and all belong to America except *V. officinalis ;* 3 are found in this State ; more than a dozen have been cultivated in England.

V. hastata. L. Common Vervain. Stem 2–4 feet high, with rough leaves, and small purple flowers in a crowded spike ; leaves lanceolate, and those near the root hastate ; flowers purple, tubular, with an unequal limb ; roads ; July.

V. urticifolia. L. Nettle-leafed Vervain. Much like the last, rather pubescent, with small white flowers ; roadsides, with the other ; common, but not abundant ; July.

V. angustifolia. Mx. Narrow-leafed Vervain. Has linear-lanceolate leaves, remotely toothed ; stem a foot high, hairy, with blue flowers ; rocky grounds ; June.

V. officinalis. L. The only species common to Europe, and supposed to be the plant so much used in medicine, in religious offerings, and feasts, is now a neglected plant ; rarely cultivated in this country.

Phryma. L. 13. 2.

P. leptostachya. L. Lopseed. The reflexed seed-vessel is a very distinct character ; flowers in a long spike, with large leaves below ; grows along hedges and woods ; July.

This is an American genus of only one species.

ORDER 221. LABIATÆ. The Mint Tribe.

This is a large order of important plants. They have a tubular, irregular corolla, 2-lipped, with the upper lip entire or bifid, and the under lip 3-lobed and larger, overlapped by the upper, surrounded by a tubular calyx, 5 or 10-cleft, or 2-lipped, inferior, persistent; stamens 4, 2 long and 2 shorter, inserted on the corolla, or with only 2 stamens, occasionally with the rudiments of the other sometimes present; ovarium 4-lobed, each lobe having the rudiment of a seed, with 1 style rising from the base of these lobes, and terminating in a bifid stigma; fruit 1 – 4 naked seeds or small nuts contained in the permanent calyx which operates in part like a seed-vessel; stems 4-cornered, with opposite leaves, abounding in little sacs of aromatic oil.

The oil, with the bitter principle, makes these plants tonic and stomachic, and highly grateful and pleasant. Not one poisonous plant is found in the order. They are used for many economical and medicinal purposes. Camphor is one of their common products.

The plants are widely spread over the temperate regions of the earth, generally in warm, dry situations, not often in marsh-like places. In Germany, France, and the United States, they form about one twenty-fourth of the flowering plants; in some places a little more. Twenty-four genera and 37 species are found in this State, besides many cultivated species of other genera. Some of these, appearing as indigenous, have undoubtedly been introduced from their native soils in other countries.

Lycopus. L. 2. 1. Water Horehound.

Named from the Greek for *wolf* and *foot*, from the shape of some of the leaves.

L. Virginicus, L., Bugleweed, and *L. Europæus*, Mx., Water Horehound, are common in rather moist situations in the fields, about a foot high, with small whitish flowers in clusters or whorls about the opposite sides of the square stem.

These have had considerable reputation as a remedy for bleed-

ing at the lungs, or spitting blood, but it seems to have greatly diminished. As the plants have no very strong properties, their influence was doubtless overestimated. Besides, the decoction of the plant might relieve and palliate the symptoms, and yet have little influence in removing the cause of the disease. Perhaps, too, the application of the plant was in cases not truly coming under those affections of the lungs, which are so rarely arrested in their progress to a fatal termination.

Monarda. L. 2. 1.

Named in honor of N. Monardez, a physician. It includes several beautiful species, and is a North American genus of a dozen species, which have been cultivated in England; 4 species belong to this State, and are more common in the western part of it. They grow in light soils, some about woods or hedges, not very abundant.

M. oblongata. Ait. Found about Boston also; grows about 2 feet high, bearing whorls of bluish flowers; in gardens.

M. didyma. L. The cultivated species, with large whorls of deep-red or scarlet flowers, and commonly called *balm* or *bee-balm*, which is a different plant of this order. In general appearance and odor, the two, however, are much alike.

M. clinopodia. L. Is 3 feet high, with pale purple flowers; often cultivated.

M. hirsuta. Ph. A hairy plant, stem 2 or 3 feet high; 4 or 5 whorls of flowers on the upper part of the branches; small pale-blue flowers.

Hedeoma. Pers. 2. 1.

From the Greek for *mint;* an American genus except one species; small plants.

H. pulegioides. Pers. Pennyroyal. A humble, strong-scented plant, in fields and on dry hillsides; its decoction had

formerly some reputation as a sudorific; has many flowers in whorls, and receives its specific name from MENTHA *pulegium*, L.

COLLINSONIA. L. 2. 1.

In honor of P. Collinson, a correspondent of Linnæus; a North American genus, containing 7 species.

C. Canadensis. L. Horse Balm. A strong-scented plant, 2 – 3 feet high, with large yellow flowers on a long terminal panicle, and with large, broad leaves below; in hedges and open woods; matures but one seed in the calyx; July. It is sometimes called Horseweed.

SALVIA. L. 2. 1.

From the Latin *to save*, from its supposed healing powers; a large and rather handsome genus of 112 species, widely spread over the warmer parts of the earth; near 50 species are found in North and South America; many of those of tropical regions have splendid flowers. Two are commonly cultivated in gardens; near 100 species have been introduced into gardens in England.

S. officinalis. L. Sage. Common Sage. Well known for its aromatic odor, its use in cookery, and for its decoction, taken for its sudorific property; a native of the South of Europe. The Chinese use it as a tonic.

S. sclarea. L. Common Clary. A larger plant with larger leaves and flowers, and stronger odor; from Italy, and not very common. Has its specific name from the Greek for *stiff*, as it is a stiff plant.

ROSMARINUS. L. 2. 1.

R. officinalis. L. Rosemary. From the South of Europe; cultivated for properties similar to those of Sage; grows near the sea, and named *Sea-dew;* a fine aromatic tonic, in considerable use formerly; shrubby.

GLECHOMA. L. 13. 1.

From the Greek name of a kind of Thyme ; a genus of 2 species, and of little use in later times.

G. hederacea. L. Ground Ivy. A low, trailing plant, densely covering the earth, and hence often named *Gill-grow-over-the-ground*, with opposite kidney-shaped leaves, and bright-blue flowers ; the stamens so stand, that the anthers form a distinct cross. A native of Britain ; by many supposed to be introduced into our country, and by some considered indigenous. Once had reputation as a medicine.

HYSSOPUS. L. 13. 1. Hyssop.

The Latin form from the Hebrew and Arabic name of some unknown plant ; a genus of few species.

H. nepetoides. W. (Lophanthus of Hitchcock's Catalogue.) Named from its resemblance to Catnep or Nepeta, is widely spread about fences and dry hedges, 2 or more feet high. Indigenous, with the following, to North America.

H. scrophularifolius. W. Nearly as common, and in similar situations ; often considered only a variety of the preceding, but seems distinct ; larger, and broad-leafed.

H. officinalis. L. Garden Hyssop. Is from the South of Europe, a fine fragrant plant, and formerly popular as a medicine.

NEPETA. L. 13. 1.

Named from Nepet, in Tuscany ; a genus of about 30 species, chiefly in the South part of Europe, and the adjacent countries of Africa and Asia ; the middle segment of the lower lip of the corolla is finely crenate, and the throat quite open.

N. cataria. L. Cat Mint, or Catnep. Because *cats* are fond of it in winter ; for in this country, as in Europe, they seek it in winter, and roll themselves on the dried leaves, and eat it ; when

it is raised from the seed, cats are said not to touch it, while they work at that which is transplanted and larger. *Loudon.* It is still used in decoction as a popular medicinal drink. An exotic from Britain. It is one of the plants that follows man wherever he settles.

Leonurus. L. 13. 1.

From the Greek for *lion* and *tail*, as its spikes of flowers have some resemblance to the bushy tail of that animal ; a genus of 7 species in the Northern and Middle parts of Asia.

L. cardiaca. L. Mother Wort. A well-known plant about houses and gardens ; celebrated formerly for its high medicinal character, and still considerably used as a popular drink for the relief of colds and affections of the chest. A fine looking plant, with handsome flowers, and beautiful 3-lobed leaves ; introduced into Europe from Tartary, and thence into America, and now naturalized over a great extent of the earth ; another plant that follows closely after man in his migrations.

Clinopodium. L. 13. 1.

From the Greek for *bed* and *foot*, as the cluster of flowers has some resemblance to the caster of a bed's foot ; not a large genus ; belonging to the eastern continent chiefly.

C. vulgare. L. Wild Basil. Field Thyme. Found in rocky woods, and doubtless indigenous to this country ; a foot or more high, with purple or reddish flowers in dense hairy whorls, with hairy leaves ; aromatic ; July.

Lamium. L. 13. 1.

As its flowers have a rude resemblance to some beast, the plant is named after Lamia, a monster of the sea ; a small genus, chiefly in Europe.

L. amplexicaule. L. Dead Nettle. Hen-bit. A small slender plant, in gardens and roadsides, with small rose-colored flowers, and stem half a foot or more high ; floral leaves broadly cordate ; May to September.

MARRUBIUM. L. 13. 1.

From the name of a town in Italy on the Fucine Lake, *Mariaurbs;* a small genus.

M. vulgare. L. Horehound. This plant is from Britain, and has become naturalized in many places, in sandy roads and fields; aromatic, tonic, diuretic, and laxative, used in affections of the lungs, and still a popular medicine.

PRUNELLA. L. 13. 1.

A softening of the German name of a disease in the jaws and throat, for which this was considered a specific; a European genus of a few species.

P. Pennsylvanica. W. Self-heal. Heal-all. Spread over fields and pastures, bearing heads of beautiful purplish flowers, not used to heal any thing. This is doubtless a mere variety of *P. vulgaris*, L., introduced from Europe.

BALLOTA. L. 13. 1.

B. nigra. L. Black Horehound. A less common plant, introduced from Britain about Boston; calyx with 5 teeth and 10 ribs; stem 2–3 feet high, with slightly cordate leaves, flowers in axillary whorls, white or purple; July.

From the Greek *to reject*, on account of its offensive odor.

GALEOPSIS. L. 13. 1. Hemp Nettle.

From the Greek for *weasel* and *appearance*, as the flower is thought to have some resemblance to that animal; 8 species of this genus, chiefly in Europe; none indigenous to this country.

G. Tetrahit. L. Flowering Nettle. About houses and waste places, branching, hispid along the stem backwards, and with the joints thickened towards the upper part, and rather handsome flowers; introduced from Europe. In some places it seems to have sprung up from the straw thrown out from crates of crockery, introduced from England.

G. ladanum. L. Red Hemp Nettle. A smaller plant with a hairy stem, and far more rare. Indeed it is credited only to Chelsea Beach by Dr. Bigelow.

Stachys. L. 13. 1.

From the Greek for a *spike*, as the flowers are sessile along the stem, and in all the species the inflorescence is in spikes ; near 40 species, mostly in Europe and the North part of Asia ; about 35 have been cultivated in England ; 4 or 5 are found in the United States, and 3 in this State.

S. aspera. Mx. Hedge Nettle. About a foot high, erect, with the angles hairy backwards, and lanceolate leaves, sharp-serrate ; teeth of calyx spreading and spiny ; fields ; July ; purple flowers in whorls so as to be spike-form.

S. hyssopifolia. Mx. A small plant half a foot or more high, with linear leaves and a hairy purple corolla ; meadows ; July ; near New Bedford.

S. sylvatica. L. Has probably been introduced from Europe.

Thymus. L. 13. 1.

T. vulgaris. L. Thyme. Cultivated in gardens, and naturalized in a few places. Named from the Greek for *courage*, as its aromatic odor is reviving. The plant yields considerable camphor ; formerly used in cookery ; its extract is penetrating and strong.

Trichostema. L. 13. 1.

From the Greek for *hair* and *stamen*, as its stamens are slender and hair-like ; a genus of 3 species in North America, and 1 in Asia.

T. dichotoma. L. Blue Curls. A rather handsome plant with numerous terminal flowers, and long, arching stamens ; pastures and hills of light soil ; June.

Teucrium. L. 13. 1.

In honor of Teucer, a Trojan prince ; a genus of more than 70 species, chiefly in Europe, but many in other countries ; 2 in the United States.

T. Canadense. L. Wild Germander. A foot high, with a square stem and downy leaves ; flowers purple in a whorled spike ; whole plant hoary-pubescent ; bracts longer than the calyx ; low grounds ; July. Very little use is made of the plant.

Isanthus. Mx. 13. 1.

From the Greek for *equal* and *flower*, because the 5 segments of the corolla are equal ; a North American genus of 1 species, and no known use ; stamens nearly equal.

I. cæruleus. Mx. False Penny Royal. Covered with a viscid pubescence ; pale-blue flowers, axillary and pedicillate ; calyx becoming rusty ; banks of rivers ; June.

Mentha. L. 13. 1. Mint.

From the Greek, as the poets feign that Mintha, a daughter of Cocytus, was transformed into a plant of the same name ; a genus of more than 30 species, of which near five sixths are found in Europe, and the rest in very different parts of the world ; some are shrubby ; about 30 have been cultivated in England ; 3 belong to the United States, and 2 have been introduced.

M. borealis. Mx. Horse Mint. About a foot high, hairy, with many whorled pale-purple flowers, and strong odor ; leaves lanceolate and serrate ; sandy soils ; August ; a fine plant, and would be ornamental in gardens.

M. viridis. L. Spear Mint. Too well known to need description ; pleasant for its odor ; July ; introduced from England. It is used for culinary purposes in England, and its oil is considered pleasant and medicinal.

M. piperita. Sm. Peppermint. This plant has become naturalized in many places along streams and moist grounds, having been cultivated extensively for the manufacture of oil of Peppermint. A few years since, it was a profitable product of the farm in several towns in Berkshire County. The essential oil is antispasmodic, and given for pains and colic from spasms ; used as a stomachic also, a carminative, sometimes for relief of dyspeptic symptoms. The essence of Peppermint should be given with much caution.

Pycnanthemum. Mx. 13. 1.

From the Greek for *dense* and *flower*, as the blossoms are in a dense head ; a North American genus of near a dozen species, of which 5 belong to this State. They are widely scattered, but are not very abundant ; grow in fields and along hedges and woods.

P. verticillatum, Pers., and *P. incanum*, Mx. Mountain Mint. Are rather handsome plants, and have been sometimes cultivated in English gardens. Both are pubescent and whitish.

P. lanceolatum, Ph., and *P. linifolium*, Ph. Virginia Thyme. Are 1 – 2 feet high, branched, with nearly level-topped corymbs of white and small flowers ; much alike, but may be distinguished.

P. aristatum. Mx. Has hoary lanceolate-ovate leaves, with sessile heads of flowers. This was considered a Nepeta by Linnæus, and the preceding two have been placed in the genus Brachystemum.

Scutellaria. L. 13. 1.

From the Latin word for a *small vessel*, on account of the shape of the calyx, like a cup with a handle, and when inverted, like a helmet. *Loudon.* A genus of near 30 species, of which about a dozen are in the United States ; 2 are common in New England.

S. galericulata. L. Scull-Cap. Branched, 1 – 2 feet high ; leaves cordate-lanceolate, nearly sessile ; large blue flowers, solitary or in pairs ; calyx hairy ; marshy places ; August.

S. laterifiora. L. Much branched, nearly smooth, 1 – 2 feet high, with petioled leaves ; flowers small, blue, in lateral racemes ; wet meadows, and borders of wet woods ; July.

A few years ago this species had great reputation as a cure for the bite of a mad-dog ; no confidence is placed in it now. The hydrophobia, like other acute and powerful diseases, is, perhaps, not designed to have any specific remedy.

Several plants of this order are found in the gardens, continually cultivated for some desirable property.

Origanum. L. 13. 1.

O. majorana. L. Sweet Marjoram. Distinguished for its odor ; from Portugal ; its essential oil is acrid and caustic. *Loudon.* Named from the Greek for *mountain joy*, from its place and pleasantness.

Ocymum. L. 13. 1.

O. basilicum. L. Basil. Another sweet-scented plant, from India, named from the Greek *to smell*, on account of its strong odor, and *royal basil*, from its use in medicine, in ancient times, *basil* being only a shortening of the Greek for *royal.* It has lost its medicinal reputation in a great degree.

Melissa. L. 13. 1.

M. officinalis. L. The true Balm, from Italy. From the Greek for *bee*, as that insect delights in this plant for its honey. Odor pleasant, flowers and foliage handsome, formerly used as a tonic, diuretic, and stomachic ; now little used except as a pleasant drink in fevers. Scarcely naturalized.

Satureja. L. 13. 1.

S. hortensis. L. Summer Savory. A fine culinary aromatic from Italy, found in most gardens.

Lavandula. L. 13. 1.

L. spica. L. Lavender, or Sweet Lavender. From the Latin *to wash*, because Lavender water has long been used for its effects upon the skin ; a native of the South of Europe. It is a stimulant and tonic ; the oil is considerably used.

MOLUCCELLA.

M. lævis. W. Shell Flower. Brought from Molucca, and cultivated for ornament; fine large flowers, with a singular, enlarged, flat-oval calyx, which originates the English name. The Moluccas afforded the species from which the genus was named.

ORDER 222. BORAGINEÆ. THE BORAGE TRIBE.

Corolla monopetalous, 5-cleft, sometimes 4-cleft, usually regular, surrounded by a persistent calyx of 5 or 4 divisions; throat or upper part of the corolla open, or sometimes closed; ovarium 4-parted; style simple; stem round, leaves opposite, usually rough.

Several genera of native plants belong to this order, of which the species are not numerous; some, cultivated, have been introduced from other countries.

BORAGO. L. 5. 1.

B. officinalis. L. Borage. A rough-leafed plant, introduced from England, and now partially naturalized; was formerly used as a distinguished cordial; fine blue flowers, with a flat border or limb, and a finely rotate or wheel-shaped corolla.

SYMPHYTUM. L. 5. 1.

S. officinale. L. Comfrey. Another plant of the gardens, with white flowers in clusters, partially naturalized, and growing for years in the same place, and extending itself very little. Formerly used as a vulnerary, and famed for healing wounds; its name is from the Greek for *union;* the English name probably from its *comfortable* influence on wounds. Blossoms a long time; a mucilaginous plant; introduced from England.

ANCHUSA. L. 5. 1.

A. officinalis. L. Bugloss. From the Greek for *paint*, as the root of one species was used for staining the features, and the English name is *ox-tongue*, on account of the shape of the leaves, and their roughness, from the Greek for *ox* and *tongue;* much

like Borage in properties ; introduced from Britain ; flowers yellow.

PULMONARIA. L. 5. 1.

P. officinalis. L. Lungwort. Probably named from its use in pulmonary affections ; a native of England ; rather rare, even in gardens.

CYNOGLOSSUM. L. 5. 1. Hound's Tongue.

The English name is the translation of the generic name, from the Greek.

C. officinale. L. Common Hound's Tongue. A woolly plant, bearing deep-red flowers, by roads and in fields ; of offensive odor. It has been used as antiscrofulous ; seems to be a native of this country as well as England.

C. Virginicum. L. Hairy also, with a stem nearly hispid ; flowers blue. It is rather doubtful whether this species is in Berkshire County, as once announced. Shady woods ; May.

LITHOSPERMUM. L. 5. 1. Stone Seed.

The English name is a translation of the generic name.

L. arvense. L. Corn Gromwell. Bearing white flowers, with rough, hairy, sessile leaves.

L. officinale. L. Common Gromwell. Covered with stiff hairs, with yellow axillary flowers, a foot or two high. This and the preceding are not very common plants of the fields ; doubtless introduced from Europe.

LYCOPSIS. L. 5. 1.

L. arvensis. L. Small Bugloss. Grows in sandy fields, very hispid, with bright-blue flowers in a raceme ; corolla funnel-form, with the tube incurved, and the throat closed with scales.

Named from the Greek for *wolf* and *eye*, on account of the im-

aginary resemblance of the blue flowers to the eye of the wolf; a mere weed.

L. Virginica. L. A small, hispid plant with its lower leaves spatulate, and its racemes solitary; found in dry woods.

ECHIUM. L. 5. 1.

E. vulgare. L. Viper's Bugloss. Corolla nearly bell-form with a short tube, large and blue in lateral spikes; stem erect, bristly; hills; June.

A very handsome plant; named from the Greek for *viper*.

ONOSMODIUM. L. 5. 1.

O. hispidum. L. From the Greek, for its *resemblance* to Onosma, a genus of this order; calyx deeply 5-parted, with linear segments; hills; August; a weed of our country.

MYOSOTIS. L. 5. 1.

From the Greek for *mouse* and *ear*, on account of the shape and velvety surface of the leaves of one species.

M. arvensis. Sibth. Forget-me-not. This is like *M. scorpioides*, L., and called by the same English name; introduced from England; a pubescent, grayish plant, not a foot high, with small white flowers, with a salver-shaped corolla, short tube, and flat border; sometimes called *scorpion grass*, from its stem of flowers bending over in the form of a scorpion's tail; sandy fields; June.

M. palustris. Ph. Water Mouse-Ear. Grows along ditches and banks of streams, with scattered, lanceolate, broad leaves, sessile and smooth; racemes of flowers rolled backwards at the end; June to October. Seems to be indigenous; near Boston.

M. Virginiana. L. Field Mouse-Ear. This is the *Rochelia* of some authors; a troublesome weed in fields, among wheat, &c.; with an erect, hairy, branched stem, and large, lanceolate, roughish, hairy leaves; July.

ORDER 226. HYDROPHYLLEÆ. The Water-leaf Tribe.

Calyx inferior, 5 or 10-divided, with a 1-petalled, 5-lobed, usually regular corolla, and 5 stamens ; ovary superior, 1-celled, and bifid stigma on the single style ; fruit in a capsule ; leaves opposite or alternate ; roughish.

Hydrophyllum. L. 5. 1. Water-leaf.

From the Greek for *water* and *leaf*, because the cavity of the leaf often holds a drop of water in the spring ; a North American genus of only two species ; abounds over the hills and valleys of Berkshire County, often along dry hedges and borders of woods ; of no known use ; rather showy.

H. Virginicum. L. Stem about a foot high, nearly smooth, with pinnate and pinnatifid leaves ; clusters of white and blue flowers ; woods ; June.

H. Canadense. L. Stem about a foot high, hairy, with large, broad, 5 or 7-lobed leaves, cordate at the base ; flowers clustered, and colored like the other ; woods and hedges ; June.

TRIBE II. GYMNOSPERMÆ,

(Or having naked seeds.)

All the genera belong to the Trees and Shrubs ; the species are not *herbaceous*.

Sub-class II. *ENDOGENÆ. Monocotyledones.*

These plants are generally to be distinguished by their leaves. They are naturally divided into two tribes ;

Petaloideæ, from their petals forming a whorled assemblage, as in the preceding plants of polypetaloidal corolla, or else achlamydeous ; and

Glumaceæ, having imbricated floral organs.

TRIBE I. PETALOIDEÆ.

ORDER 229. ALISMACEÆ. Water-Plantain Tribe.

Sepals, or leaves of the calyx, 3, and petals also 3 ; stamens various in number ; ovaries several, superior and 1-celled, having each its style ; fruit dry, not opening ; leaves with parallel veins ; more or less floating plants.

The herbage is commonly acrid, but the roots of some species are eatable. The plants of this order are not very numerous, and grow chiefly in northerly regions.

Alisma. L. 6. 12.

Named from the Celtic for *water*, as the plants grow in water or wet places ; 10 known species ; 1 in this State.

A. plantago. L. Water Plantain. Stem 2 feet high, branching, with broad nerved leaves, like the common Plantain, and hence its name in English as well as in Botany ; petals white ; July. The panicle is pyramidal with whorled branches ; root bulbous with numerous radicles or fibres. It has been greatly commended as a sure relief from hydrophobia. Indigenous also over much of Europe.

Sagittaria. L. 19. 12.

So called from the *arrow-shaped* leaves of many species. In this country the plants are not employed for any useful purpose. In China, one species is "cultivated for food." *Lind.* About a dozen species have been described, most of which are found in this country, and 4 are pretty common in this State. Leaves nearly radical, stand erect, and nearly equal to the length of the scape or naked culm. Aquatics.

Floral envelopes 6-parted, 3 outer, calyx-like, and persistent; 3 inner, colored, petal-like; stamens and pistils in separate flowers; capsules compressed, 1-seeded.

S. sagittifolia. L. Arrow-head. Stem or scape often 2 feet high, with the lobes of the sagittate leaves long, straight, acute, lanceolate; flowers white, whorled in threes; July. Common also in Europe.

The leaves are very variable; sometimes so wide as to give the name *broad-leafed* to the variety; sometimes with rather hastate leaves, for another variety; sometimes very slender-leafed, forming a slender and delicate variety; and one variety has leaves so obtuse, as to be often called *S. obtusa*, as a distinct species, though the change from the narrow and acute leaves can be often traced to the broad and obtuse within the distance of a few rods where the plants abound.

S. heterophylla. Ph. A more slender plant, with leaves linear and lanceolate, or sagittate and narrow-lobed; few-flowered; ditches and ponds; July. A foot or more high.

S. acutifolia. Ph. Acute-leafed Arrow-head. Stem or scape 6 inches high, with subulate, acute leaves, convex on the back, and sheathing at the base; few-flowered; flowers on pedicles; muddy places; July.

It is probable that some other species, as they are commonly considered, are confounded with the preceding.

ORDER 231. HYDROCHARIDEÆ. Frog-bit Tribe.

Sepals 3 ; petals 3 ; ovary single and inferior, 1-celled or many ; fruit not opening by valves ; flowers spathe-like, monoclinous or diclinous ; plants floating, or submerged ; leaves with parallel veins.

The plants of this order are spread widely over the world, though only a few are found in New England ; Hydrocharis, from which the order is named, is unknown here.

Udora. Nuttall. 19. 9.

Has 9 stamens, 3 interior ; tube of the perianth long ; capsule bladder-like ; about 3-seeded.

U. Canadensis. Nutt. Ditch Moss. In waters, submerged, and stem much-divided, with whorled leaves, and small white axillary flowers ; August. This is Serpicula *verticillata*, Muhl.

Vallisneria. L. 20. 2.

Has an ovate, 2-parted spathe, and a spadix of minute flowers ; perianth 3-parted ; stamens 2 ; scape long and spiral ; stigmas 3, sessile ; capsule long, cylindrical, 1-celled, and many-seeded. Still waters.

V. spiralis. L. Tape Grass. The sterile or staminate flowers grow on short scapes at the bottom of the water ; the fertile or pistillate flowers are on a long spiral stem or scape rising to the surface ; leaves very long, linear, obtuse, 3-nerved, radical, about 3 lines broad.

This was considered by Michaux a distinct plant from that of Europe, and named by him *V. Americana ;* it seems to be a mere variety, and is thus named by Nuttall, Torrey, &c.

This plant exhibits a beautiful provision for the fecundation of the embryo seed. The spiral stem untwists so as to keep the pistillate flower at the surface, and exposed to light, and heat, and air ; and, when the flower is in its perfect state, the staminate flowers, by a natural process, break away from the root at the

bottom of the water, and rising to the surface float about so that the pollen is thrown upon the stigma of the fruit-bearing flower. After this process, the seed is matured under the water. The ease and rapidity with which the spiral stem unwinds and extends itself, has been often remarked in the rapid rise of the waters of the River Rhone, being some "feet in a few hours," and yet the flower preserved its position at the surface. *Darwin.*

ORDER 232. COMMELINEÆ. Spider-Wort Tribe.

Sepals 3, leaf-like ; petals 3, colored, sometimes cohering at the base ; stamens 6 or less, inferior ; ovarium 3-celled ; style 1 ; capsule 2 or 3-celled, and 2 or 3-valved ; leaves commonly sheathing at the base.

The genus Commelina, which gives name to the order, seems not to be found in New England, though it is common in the adjoining State of New York.

Tradescantia. L. 6. 1. Spider Wort.

In honor of J. Tradescant, gardener to Charles the First. A few species are cultivated, though none are very beautiful ; species belong chiefly to tropical America and India.

T. Virginica. L. Introduced from the Middle States, is found in our gardens ; rather handsome. The flowers contain fine jointed hairs.

ORDER 233. XYRIDEÆ.

Sepals 3, glume, or chaff-like ; corolla 3-petalled, and the fertile stamens standing on the claws of the petals, while the sterile stamens alternate with the petals ; ovary single, capsule 1-celled, 3-valved, many-seeded ; flowers in naked and terminal heads ; leaves radical and ensiform. Grow chiefly within the tropics ; a few in the United States.

Xyris. L. 3. 1.

Valves of the calyx unequal ; petals equal ; flowers in an ovate cylindric head.

Named from the Greek for *acute*, as the leaf ends in a sharp point ; rush-like plants with yellow flowers.

X. Caroliniana. Lam. Yellow-eyed Grass. Stem a foot or more high, somewhat twisted ; leaves linear, grass-like ; scape 2-edged ; flowers yellow, in a small, dense head ; wet meadows ; July. Plant widely spread over this country ; of little use.

ORDER 235. HYPOXIDEÆ.

Perianth petaloid or petal-like, commonly 6-parted, superior, regular ; stamens 6, inserted into the base of the segments ; ovary inferior, 3-celled ; style single ; capsule not opening by valves ; stemless, or nearly stemless, with plaited leaves, and white or yellow flowers. Properties not ascertained.

Hypoxis. L. 6. 1.

Has a 2-valved spathe, and an elongated capsule, narrowed base, and many roundish, naked seeds.

Named from the Greek for *beneath* and *sharp*, as this is the termination of the lower sepals. *Loudon.* The genus seems to be of little consequence, though it has more than a dozen species, chiefly belonging to the Cape of Good Hope ; 3 are natives of the United States, and 1 of this Commonwealth.

H. erecta. L. Star Grass. Erect, hairy, with a stem or scape about 6 inches high, and narrow, long leaves, linear and grass-like ; root bulbous ; woods ; June.

Note. The place of the plants of this order seems not to be very obvious, as they have been united with the Asphodeleæ by some botanists, and associated by others with Bromeliaceæ, of which the Pine Apple is the most prominent and very different. Their affinities are much nearer those of the Hypoxideæ, and Irideæ, with which others have connected them.

ORDER 238. AMARYLLIDEÆ. Narcissus Tribe.

Flowers from a spathe ; corolla superior, 6-cleft ; stamens 6, inserted on the corolla ; ovary 3-celled ; roots bulbous or fibrous ; leaves sword-shaped, with parallel veins. Exotics, found in our gardens.

Amaryllis. L. 6. 1.

A genus of splendid plants, indigenous chiefly to the warmer parts of America and Southern Africa ; nearly 40 species have been cultivated in England ; only 1 species is found so far north as the State of Pennsylvania, *A. atamasco*, L., or Atamasco Lily, and not often cultivated in our gardens.

Corolla irregular ; stamens unequal.

The name is that of a celebrated nymph, on account of its beauty, from the Greek, *to be resplendent.*

A. formosissima. L. Jacobea Lily. A splendid plant from tropical North America, sometimes found in gardens, with a ringent-like corolla, and the divisions declined ; one flower from a spathe, white and red.

After flowering, the bulbous roots of this and similar plants should be preserved nearly dry, as they will flower the more abundantly another season.

Narcissus. L. 6. 1. Narcissus.

Named from the Greek for *stupor*, from the dangerous effects of the odor on the nerves. *Loudon.* An extensive and beautiful genus, found abundantly in Southern Europe and the adjacent countries.

N. poeticus. L. Poet's Narcissus. Flowers white, cup wheel-shaped.

N. jonquilla. L. Jonquil. From the Latin for *rush* ; spathe 1 – 3-flowered, divisions reflexed.

N. tazetta. L. From the Italian for *cup*, from the cup-form appendage of the corolla, and in English, *Polyanthus*, on account of its numerous flowers ; beautiful.

N. pseudo-narcissus. L. Daffodil, or double-flowered, has a bell-form cup erect and crisped ; spathe 1-flowered.

Galanthus. L. 6. 1.

As the flower has a snow-white color, the genus is from the Greek for *milk* and *flower*.

G. nivalis. L. Snow-drop. A beautiful early flower, with smooth leaves ; introduced from the meadows of Britain. No varieties or hybrids have been produced from it. *Loudon.*

ORDER 239. IRIDEÆ. Corn-flag Tribe.

Floral envelope 6-parted, or 6-petalled, in 2 rows, 3 often very short ; stamens 3, on the base of the corolla ; ovary inferior, 3-celled, many-seeded ; style 1, and stigmas 3, often petal-like ; leaves, except of Crocus, equitant, 2-ranked ; flowers covered by a spathe or spathe-like bract, beautiful and fugitive. Properties of very little consequence ; root of some, cathartic.

Iris. L. 3. 1. Iris or Corn-flag.

From their beautiful flowers, named after Iris, the *rainbow*, or, in Egyptian, the *eye of heaven. Loudon.* A numerous genus, and very beautiful ; abundant in Europe and Africa ; about 10 species in North America, and 2 of them in this State. Petals alternately reflected.

I. versicolor. L. Blue or Poison Flag. Common on wet grounds, and about sluggish waters, or stagnant pools ; root cathartic ; fine sword-form leaves.

I. Virginica. L. A less common plant, in similar situations ; near Boston, it is slender and more delicate, was called *I. gracilis. Big.*

I. plicata. L. Flower de Luce. A tall and splendid plant of gardens ; odor of flowers pleasant.

I. pumila. L. Dwarf Iris. A small species from Hungary, often set for the edging of walks ; very beautiful early in the spring.

I. ochroleuca. L. Yellow Iris. A beautiful species with yellowish flowers, from the East.

I. Chinensis. L. Stripid Iris, from China. Another fine species.

It is rather singular, that of the 70 species of this genus, no more have come into cultivation for their beauty.

Gladiolus. L. 3. 1. Corn-flag.

Named from its sword-like leaves ; a genus of 80 species, of which only 1 or 2 seem to have found their way into our gardens, or as pot-flowers.

G. communis. L. Corn-flag. A beautiful species, with fine leaves and splendid flowers ; indigenous to the South of Europe.

Sisyrinchium. L. 3. 1.

Chiefly an American genus ; 3 species belong to the United States ; one is common over the country. Spathe 2-leafed, corolla flat, equal.

S. anceps. L. Blue-eyed Grass. A beautiful, grass-like plant, with two-edged stem, and flat leaves, growing over pastures and upland meadows, with a few fine blue flowers. It would be a beautiful plant in gardens, and would grow probably without difficulty. A foot high or less ; July.

Crocus. L. 3. 1.

Spathe radical, and corolla funnel-form with a long slender tube ; a beautiful genus of plants.

C. sativus. L. Saffron. Sometimes named *C. officinalis*, L.,

from its various uses in medicine, the arts, domestic economy, in painting, dying, cookery, and as a medicine ; it is the true saffron ; has much less reputation than formerly ; found rarely in our gardens ; came from the East into England. Flowers yellow and violet ; leaves linear and revolute on their margins ; stigmas very long and exsert.

The plants of this genus, as well as COLCHICUM, have their germ or ovary under ground in the time of flowering ; after the maturity of the flower, the stalk rises, bearing the germ and rudiments of seed into the air, to be ripened. A beautiful contrivance.

ORDER 240. ORCHIDEÆ. ORCHIS TRIBE.

Floral envelope 3-parted, 3 outer segments or sepals, usually colored, and the odd one often uppermost from the twisting of the ovary ; 3 inner segments or petals ringent, and the odd one or lip often lobed and spurred at the base ; stamens 3, united in a central column, the 2 lateral ones usually abortive, and the middle one perfect, or, as in CYPRIPEDIUM, the two lateral perfect, and the central abortive ; pollen either powdery or cohering in waxy masses ; ovary inferior, 1-celled ; style forming a part of the column of stamens ; stigma a viscid opening in front of the column ; capsule 3-valved, 3-ribbed, rarely of a berry-form ; seeds numerous ; roots fibrous or tuberous ; leaves simple, entire.

This is a large family, containing many beautiful plants, and their flowers exquisitely delicate, and so curious in form as to resemble in some measure a great variety of insects, animals, and other objects. The species, supposed by Lindley to be 1500, are spread over all parts of the world, except cold and dry situations. Fourteen genera, as they are now divided, are found in this Commonwealth ; for few plants have suffered such divisions and changes at the hands of botanists, as these, and few plants have wrought such changes in the opinions of botanists. Except beauty, this order has very little to commend it, as very few of the species have been found to possess any useful properties. The order has attracted all the admirers of flowers, and received its illustration at the hands of the most distinguished naturalists.

ORCHIS. L. 18. 1. Orchis.

Lip of the corolla with a spur on the under side at the base. Its name is the Greek name of the genus without alteration ; it embraced many species, but most of them have been placed under the next genus.

O. spectabilis. L. Showy Orchis. Stem 6 or 8 inches high, angular, with about 2 large and radical leaves ; flowers large, purple, and white, with a lip obovate and undivided, crenate ; spur club-like, shorter than the ovary ; few-flowered ; shaded woods ; June.

Its short stem, large, oval, smooth, green leaves, splendid flowers of delicate texture and elegant hue, and its fascicled roots, call forth the admiration of children as they gather the plant.

O. tridentata. Willd. A small, erect, and leafy plant, bearing its small flowers somewhat in the form of a trident, so as to remind one at once of its shape. In wet upland meadows, by rivulets, on a sandy bottom in Berkshire County ; also near New Bedford ; relatively rare ; usually placed in the following genus.

HABENARIA. Willd. 18. 1. Orchis.

Lip spurred on the upper side at the base beneath ; corolla ringent, as in the preceding.

Named from the Latin for *thong* or *rein*, on account of the form and shape of the long spur. Many species belong to North America ; 12 are credited to this State.

H. fimbriata. R. Br. Fringed Orchis, because of the numerous fringed segments of the lip, or lower petal ; is an elegant plant, a foot or more high, with broad-lanceolate leaves, bearing a spike of rather dense purple flowers, everywhere arresting the attention by its beauty ; wet meadows ; July. This, according to Gray, should be *H. Psycodes.* Am. Journ. Sc., xxxviii. 310.

H. grandiflora. Torr. Large Flowering Orchis. This spe-

cies was first described by Dr. Bigelow, under the name of Orchis *grandiflora*, and is a more splendid plant than the preceding ; perhaps the largest of the Orchis tribe, and having the most showy flowers. Stem 2 feet high or more, thick, angular, hollow ; leaves below oblong-oval, obtuse ; upper leaves lanceolate, acuminate ; spike often 5 inches long, and 3 in diameter, many-flowered ; flowers large, pale-purple, with the 3 petals fringed ; Lancaster, Deerfield, &c. A variety (β) of the preceding. Gray, ubi supra.

H. orbiculata. Round-leafed Orchis, is the Orchis *orbiculata*, Ph., distinguished by its two radical, large, roundish, nerved leaves ; woods ; July. *Platanthera orbiculata. Lind.*

H. dilatata, is the Orchis *dilatata*, Ph. A large, tall, leafy plant, with unattractive flowers, in wet situations about the rivulets of hills in Berkshire County, often 2 – 3 feet high, flowers greenish-white ; July. *Platanthera dilatata. Lind.*

H. bracteata. R. Br. Grows about a foot high, leafy, with green flowers in a loose spike, spur obtuse and very short, bracts spreading ; woods ; July.

Interesting as the other species (*H. blephariglottis*, Hooker, *cristata*, R. Brown, *ciliaris*, R. Brown, *herbiola*, R. Brown (*O. flava*, L.), *macrophylla*, Goldie. *psycodes. H. incisa*, Sprengel, is *H. psycodes*) are to the botanist, they scarcely require full description in this place.

Note. The roots of some species contain a large quantity of farinaceous matter. The nutritious preparation, Salep, derived from the Arabic name of Orchis, is made in Turkey from the roots of these plants. It has been formed too in England from the roots of *O. mascula* and others, and might, probably, if needed, be procured from the species of Orchis and Habenaria in this country. The roots are washed white, dried, and ground to powder, which is the white nutritious Salep. *Loudon.*

APLECTRUM. Nutt. 18. 1.

A. hyemale. Nutt. Adam and Eve. A singular plant with a single leaf sheathed, and bearing a few flowers towards the summit. The form of the flower originates the popular name. In shady, wet woods in the valleys of Berkshire County ; flowers in June.

ARETHUSA. L. 18. 1.

A. bulbosa. L. Bulbous Arethusa. The 5 divisions of the floral envelope are united at the base, and the lip is attached to the base of the column. This species is 6 – 10 inches high, with a sheathed stem, and 1, rarely 2, large purple flowers at the summit ; lip curled and crenate ; root bulbous ; swamps ; May.

TRIPHORA. Nutt. 18. 1.

T. pendula. Nutt. Taken from the preceding, and has the 5 segments distinct, equal, and approaching ; often grows in clusters, 4 inches high, with 6 or 7 short, clasping leaves ; flowers 3 or 4, pale-purple ; root tuberous ; at roots of trees ; September.

POGONIA. Brown. 18. 1.

From the Greek for *beard*, on account of its fringed lip ; a North American genus of few, but handsome species.

P. ophioglossoides. R. Br. Snake-mouthed Arethusa, from which genus it was taken ; stem nearly a foot high, with a single flower, nodding and pale-purple, and one oval-lanceolate leaf, and a leafy bract near the flower ; lip fimbriate ; swamps ; July. The flower resembles a snake's head, whence its specific name.

P. verticillata. Nutt. Whorled Arethusa. Stem about a foot high, with 5 whorled, oblong-lanceolate leaves, near the solitary and terminal flower, of which the 3 outer segments are long and linear ; swamps ; June.

CALOPOGON. Brown. 18. 1.

Named from the Greek for *beautiful beard*, as the lip is beauti-

fully fringed as if finely bearded ; a North American genus of one species, taken from Cymbidium ; petals 5, distinct, lip behind or inverted, unguiculate.

C. pulchellus. R. Br. Grass Pink. An elegant plant, with grass-like leaves, and fine pink flowers at the summit, on a stem a foot high ; leaf usually single, 8 inches long, sheathing at the base ; flourishes in wet, marshy situations, and has an elegant appearance ; June. Some of its bulbous roots were accidentally carried to England, and the plant propagated from them.

Corallorhiza. R. Br. 18. 1.

From the resemblance of the *root* to *coral ;* lip produced behind.

C. odontorrhiza. Nutt. Coral-toothed Root. A small, yellowish plant, 8 – 12 inches high, with small purplish flowers, and lip dilated and finely spotted ; stem leafless, sheathed ; woods ; August.

Listera. Br.

L. cordata. R. Br. Has a 2-lobed lip, sessile ; stem about 6 inches high, with 2 opposite, roundish leaves, veined and smooth, and with small, distant, green and purple flowers, irregular ; swamps ; May ; often called *Tway-blade ;* named in honor of Dr. Lister. Indigenous also to England.

Neottia. Sw. 18. 1.

As the fibres of the roots are singularly interwoven, the genus has been named from the Greek for *bird's nest ;* a few species whose spiked flowers stand like a *spiral* or screw, are hence named by Richard, *Spiranthes.*

N. tortilis. Sw. Ladies' Tresses. Has finely twisted flowers, white and ringent, on a stem a foot high, and leafy towards the base ; cold, wet meadows and pastures ; June.

N. cernua. Sw. Nodding Tresses. Flowers greenish-white,

on a scape of very variable height, often no more than 4–8 inches, naked or partially leafy ; spike dense and nodding ; wet grounds ; August.

GOODYERA. R. Brown. 18. 1.

So called after J. Goodyer, an English botanist ; lateral segments of corolla below the lip, which is gibbous at the base ; taken from Neottia.

G. pubescens. R. Br. Rattlesnake Violet, or Plantain. Stem a foot high, with small, scattered hairs, terminated by many small, white flowers, on an oblong spike, twisting ; radical leaves greenish and veined with white, of very elegant appearance ; woods ; August. This plant has had great reputation among root and Indian doctors, as a remedy for scrophulous affections. In the only case I ever knew it applied, no perceptible effect followed.

G. repens. R. Br. A smaller plant, with netted radical leaves ; scape sheathed, and flowers pubescent ; woods ; July. Flowers greenish-white.

MALAXIS. Sw. 18. 1.

From the Greek for *softness*, on account of the delicate texture of some species ; a genus of few species ; floral envelope spreading, lip flat and entire ; column of stamens winged.

M. liliifolia. Sw. Twayblade. Flowers in a slight raceme, on an angular scape, with 2 ovate-oblong leaves near the root ; slender and humble plant ; wet woods ; June. Flowers yellowish-white.

M. Læselii. Sw. This plant is probably *M. correana*, Bart. ; leaves 2 opposite, radical ; scape 6 inches high, angular ; flowers yellowish-green, in a terminal spike ; wet woods ; July.

MICROSTYLIS. Nutt. 18. 1.

Named from its *small style ;* a genus of few species ; lip sessile and cordate, erect and 2-toothed ; column minute.

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M. ophioglossoides. Nutt. Adder-mouth. Stem or scape about 4 inches high, 1-leafed, and a leafy sheath at the base; flowers many, minute, greenish-white; leaf ovate, embracing the stem; root bulbous; roots of trees; June.

CYPRIPEDIUM. L. 18. 2. Ladies' Slipper, or Venus's Shoe.

From the Greek for *Venus* and *slipper*, on account of the form of the lip; a genus of 10 species, 5 in North America, and 3 in this State. Lip ventricose, inflated, obtuse; 2 under segments of the floral envelope united; column terminating in a triangular lobe. In the other genera, the 2 lateral anthers are sterile, and the middle one fertile, while in this the 2 outer anthers are fertile, and the middle one sterile and enlarged. Beautiful plants, with singular, attractive flowers.

C. spectabile. Sw. Showy Ladies' Slipper. Abundant in woods, wet, or somewhat dry, with a stem near 20 inches high, leafy, bearing sometimes 2, usually 1, purple and whitish-purple flower of variegated hues; lip large and fine; May and June.

C. pubescens. Sw. Yellow Ladies' Slipper. Stem leafy, 1 – 2 feet high, flowers yellow and slightly greenish; leaves and stem pubescent; lip compressed, shorter than the petals; woods; May.

C. humile. Sw. Low Ladies' Slipper. Leaves radical, 2, oblong, obtuse; scape a foot high or less, with one large, variegated flower; lip purple, shorter than the segments, cleft before; shaded woods; May. *C. acaule*, Ait.

ORDER 244. JUNCEÆ. RUSH TRIBE.

This order contains the plants intermediate between the petaloideous and the glumaceous, being like the former in their floral envelope, and like the latter in their texture. The plants are spread widely over the world, and most abound in colder regions, or colder soils.

Calyx or corolla 6-parted, glume-like, or chaffy; stamens 6 or

3; ovary superior, 1 – 3-celled; style 1, fruit capsular, 3-valved; roots fibrous or fascicled; leaves hollow, or flat and channelled.

Juncus. L. 6. 1.

Valves of the capsule bearing the partitions in the middle, to which the seeds are attached.

Named from the Latin *to join*, as the first ropes are supposed to have been formed of rushes. More than 70 species have been described; about 20 belong to North America, and one half of these are found in this Commonwealth.

J. effusus. L. Bull Rush. Grows in dense bunches in wet, marshy situations, with a stem simple, smooth, leafless, full of a white, spongy pith, and bearing flowers on the side, and towards the top of the stem, in a large panicle.

Used in the manufacture of mats and baskets; the pith is sometimes used for the wick of candles, rush-lights; may be twisted into ropes of considerable strength.

J. tenuis. L. A slender rush, along roads and in wet pastures.

J. bufonius. L. Frog Rush. A low plant densely growing in wet places, forming almost a turf; stem, with a dichotomous panicle, 3 – 6 inches high.

J. nodosus. L. Knotted Rush. Often cut with the coarse grasses for hay; culm a foot or more high, slender, erect, with a few leaves often longer than the stem, with knots or joints; flowers usually in 2 globose heads, having a fine appearance; wet meadows; July.

J. militaris. Big. Bayonet Rush. Discovered in Tewksbury Pond, by Mr. Greene; culm 2 or 3 feet high, with a leaf originating below the middle, and yet projecting beyond and jointed; flowers at the summit in a panicle.

J. setaceous. L. A small, slender, erect rush, growing in swamps, 2 feet high; July.

L. bulbosus. L. Black Rush. Has a deep-green color, and dark-colored spikes ; about salt marshes, and "makes good hay." *Big.* Stem erect, leafy, and in tufts ; August.

J. polycephalus. Mx. Many-headed Rush. Allied to *J. nodosus ;* often grows with it ; has many heads of flowers in a compound panicle ; often 2 feet high, and made into coarse hay ; July.

J. *acuminatus.* Mx. Grows about 20 inches high ; common in bogs ; a coarse grass, leafy ; flowers in a compound panicle ; leaves few, shorter than the stem, with knot-like joints ; July.

J. marginatus. Rostk. Not a common plant, like the preceding ; grows in low grounds ; stem compressed, 2 or 3 feet high, with flat, smooth leaves ; August.

Two or three other species grow on the White Mountains of New Hampshire, in subalpine districts. These, with the preceding, are the greater part of those found in this country. Generally they are not eaten by cattle or horses, even in their young state, and are little better than weeds.

Luzula. DC.

De Candolle formed this genus of plants from the *flat-leafed* rushes, which had been ranked with the Junci, and in the genus Juncus.

Valves of the capsule without partitions ; 1 seed affixed to the bottom of each cell.

L. pilosa. Willd. Hairy Rush. From 6 – 12 inches high, with numerous, radical, hairy leaves ; flowers in cymed panicles ; woods ; April.

L. campestris. DC. Common Hairy Rush. About the height of the preceding, cespitose at the base, flowers in terminal panicles, somewhat umbel-like ; leaves hairy ; meadows ; April.

L. melanocarpa. Desv. Black-fruited Rush. Has a black capsule, a leafy culm, about a foot high, a lax capillary panicle of flowers, and leaves linear-lanceolate and smooth ; woods.

ORDER 245. MELANTHACEÆ. Colchicum Tribe.

Floral envelope inferior, petal-like, 6 divisions, but sometimes united into a tube at the base ; stamens 6 ; ovary superior, with a 3-parted style ; roots fibrous, sometimes fascicled ; leaves sheathing, with parallel veins. The plants are pretty widely diffused, all poisonous, and some deadly poisons.

Most of the species of Melanthium, from which the order takes its name, belong to the Cape of Good Hope, and no one of the 4 species found in this country seems to be found in New England.

Helonias. L. 6. 3.

From the Greek for *marsh*, because some of the species delight in wet places ; a North American genus of few species ; 8 have been introduced into England, and only 1 seems to occur in New England. Corolla 6-parted, spreading ; capsule 3-horned.

H. dioica. Ph. Blazing Star. Devil's Bit. Unicorn's Horn. About 2 feet high, leafy, terminating in a long raceme of small, whitish, dicœcious flowers, somewhat angular culm, with small leaves above, and wider and longer leaves below ; wet situations on hills, Stockbridge, Berkshire County. Is the Veratrum *luteum*, L. ; root premorse or bitten off at one end apparently, and very bitter. *Nuttall.*

Veratrum. L. 6. 3.

Said to be named from the Latin, *truly black*, the color of the root ; species mostly American ; only 1 in this State.

V. viride. Ait. Indian Poke. Itch-weed. Swamp Hellebore. Grows in moist meadows, and open woods, 2 – 4 feet high, large and strong stem, large and broad leaves, large panicle of greenish flowers ; a poisonous plant, emetic. The root con-

tains a peculiar vegetable alkali, called *veratrin*, which is the source of its dangerous properties. The pulverized root, when snuffed into the nose, produces violent and long continued sneezing, and should be avoided, as it endangers the vessels of the head. Boys sometimes make dangerous experiments with it.

The root of Colchicum *autumnale*, L., so distinguished since the days of Hippocrates, as a medicine, contains the same alkali, *veratrin*, which probably gives its diuretic, cathartic, and narcotic properties. I have not known of its cultivation in this State; indigenous to Europe.

ORDER 246. PONTEDEREÆ.

Flower or perianth tubular, 6-parted, inferior, colored, irregular; stamens 3 or 6, unequal, standing about the style; ovary 1 – 3-celled, 3-valved; leaves sheathing at the base, with parallel veins; flowers from a spathe, often blue; aquatic plants, showy from their deep-green leaves and fine flowers, but not of any use. Not found native in Europe.

Pontederia. L. 6. 1.

Named in honor of Professor Pontedera of Padua, more than a century ago; a genus of few species, 3 in this country, and 1 in this State. Perianth 2-lipped, 3 stamens on its lip, and 3 on the tube; seeds in a utricle or bladder-like capsule.

P. cordata. L. Pickerel Weed. Stem 1 or 2 feet high, thick, large, with oblong-cordate leaves rising from the lower part; flowers in a long, dense spike, collected into twos or threes, sessile, bright-blue.

In Berkshire County, Pickerel Weed has abounded on the waters of the Housatonic River, but Pickerel fish were not found in the streams till they were brought from the waters of Connecticut River and put into the ponds.

P. angustifolia. Ph. A narrower leafed plant, found in a pond in Leverett; considered by Dr. Torrey only a variety of the former species. Another species is found in South Carolina and Georgia.

SCHOLLERA. Schreb. 3. 1.

Spathe 1-flowered ; tube of the flower very long and slender, with the limb deeply 6-parted ; capsule 1-celled. It is the genus Leptanthus of Mx., named from the Greek for *slender flower ;* named Schollera in honor of a German botanist, F. A. Scholler.

S. graminea. Vahl. Grows in waters, grass-like, slender, with a stem 6 – 8 inches long ; leaves sessile, linear, grassy ; spathe 1 or 2-flowered ; flowers bright-yellow ; July.

ORDER 247. ASPHODELEÆ.

One floral envelope, forming the corolla of the Linnæan botanists, 6-parted or 6-cleft, regular, after bursting forth from a spathe or closely-enclosing leafy or membranous covering ; stamens 6 on the perianth or corolla ; ovary superior, 3-celled ; fruit mostly a 3-celled, 3-valved capsule ; leaves with parallel veins.

The members of this family are widely spread over the world, especially in the temperate climes. Many are cultivated for their great beauty ; some for use or food. A gummy juice, containing a little stimulant in very variable proportions, is common to many species, and forms valuable gums, as aloes, gum-dragon, &c.

ASPHODELUS. L. 6. 1.

Named from its unsurpassed beauty.

A. luteus, L., and *A. ramosus*, L. King's Spear. Have been considered beautiful garden plants ; from the South of Europe ; the former has 3-sided leaves, and the latter has sword-form leaves.

ORNITHOGALUM. L. 6. 1. Star of Bethlehem.

No known reason for its name, from the Greek, for *bird* and *milk.*

O. umbellatum. L. A handsome spring plant of the gardens, with fine flowers ; from England. Naturalized in some places.

O. squilla. L. The well-known medicine, *squill*, from the South of Europe ; little cultivated, but very important, and curious from its association with the Star of Bethlehem.

Hyacinthus. L. 6. 1.

Hyacinthus was fabled to have been killed by Zephyrus, and changed into this flower ; several species have been cultivated for their beauty. The species from the Levant.

H. orientalis. L. Has many beautiful varieties. Like the Tulip, this plant has been a great article of trade. The Dutch export several hundred varieties.

Asparagus. L. 6. 1.

From the Greek *to tear*, on account of the prickles of some species.

A. officinalis. L. The well-known Asparagus, so much used as a culinary vegetable. It grows along the seashore in many parts of Britain, and of the continent, as well as in the interior of Turkey and Russia, commonly flourishing in a sandy soil. It was greatly praised as an article of food before our era. Its successful cultivation requires a rich and light soil. The manure from the hog-pen on a light and sandy loam, produces it in great perfection, early in the season, and for a long time. Salt is said to be a favorable stimulant to it, as it is to many plants which do not delight in the seashore for habitation. It is diuretic and slightly laxative, and healthful to persons of sedentary habits. The juice contains a peculiar vegetable substance, called *asparagin.*

Aletris. L. 6. 1.

From the Greek for *meal*, on account of the mealy dust on the plants, or some of them ; a North American genus of few species. Corolla tubulous, 6-cleft at the summit, rugose or wrinkled ; style conical ; capsule 3-celled, 3-valved, opening at the summit.

A. farinosa. L. False Aloe. Colic Root. Stem rises 2–3

feet high, bearing alternate white flowers, with radical and sessile leaves, long and smooth; flowers white, and in a spike; sandy woods; July. The root is very bitter, and in small quantities used as a tonic and stomachic. See Bigelow's "Medical Botany."

Allium. L. 6. 1.

From the Celtic for *hot* or *burning*; a large genus, as more than 60 species have been described, chiefly indigenous to Europe and the adjoining countries; a few belong to the United States, and 2 to Massachusetts.

Corolla 6-parted, spreading; spathe many-flowered; umbel crowded; capsule superior, 3-celled, 3-valved.

A. Canadense. L. Meadow or Wild Onion. Bears bulbs like the common onion, with flowers terminating a leafless scape nearly 2 feet high, and leaves linear, and nearly radical; wet meadows; May.

A. tricoccum. Ait. Wild Leek. Grows in woods, on hills, and in valleys, with a round scape a foot high, and oblong, flat, and smooth leaves; June. This is often eaten by cattle in the spring, and the milk of cows is made redolent with its strong and offensive odor.

A. cepa. L. Onion. From the Celtic for *head*, probably from its form of flowers; too important not to be noticed, and too well known to need more than a notice; indigenous to Hungary. The varieties, which have white, yellow, and red bulbs, are common in gardens; the roots contain free phosphoric acid.

A. Ascalonicum. L. Shallot. Leaves subulate, a native of Palestine, near Ascalon.

A. sativum. L. Garlic. From Sicily, flat-leafed.

A. porrum. L. Leek. From the Celtic *to eat*, with leaves

sheathing towards the base, much used for culinary preparations ; from Switzerland.

A. schœnoprasum. L. Chives, or Cives. From Britain ; grows in handsome tufts.

A. proliferum. Schr. Tree Onion. Bears its bulbs on the stem, and among the flowers, or instead of them ; a native of the West Indies ; rarely cultivated.

Most of those mentioned, are expectorant, stimulant, and diuretic.

ORDER 249. SMILACEÆ.

Flowers sometimes dicœcious ; perianth petal-like, inferior, 6-parted, with 6 stamens inserted near its base ; ovary 3-celled, and style usually trifid ; fruit a roundish berry ; leaves sometimes with net-like veins ; plants sometimes are climbers.

Widely spread over the world ; half in tropical America.

Smilax. L. 20. 6. Jacob's Ladder.

The name is from the Greek for *grater*, on account of the rough stem of some ; about 50 species.

Perianth 6-leafed, in both the dicœcious flowers ; styles minute, 3, stigmas 3 ; berry 3-celled, superior.

The 3 species of this genus found in this State, are not abundant, though often occurring.

S. rotundifolia. L. Green Briar. A prickly, troublesome vine, forming tangled thickets, not without beauty ; about the trees and shrubs on which it climbs. Distinguished for its roundish, heart-shaped, 5-nerved leaves, and glossy black berries.

S. peduncularis. Muhl. Jacob's Ladder. Unarmed, and distinguished by its acuminate, 9-nerved leaves, offensive, greenish flowers, and bluish berries.

S. herbacea. L. But 2 or 3 feet high, with 1 or 2 branches.

S. sarsaparilla. L. The well known medicinal plant of this name, indigenous to North America ; demulcent and diuretic, and used as medicine in many cases.

Gyromia. Nutt. 6. 3.

The 6 divisions of the perianth revolute ; stigmas 3, united at their base ; berry 3-celled.

G. Virginica. Nutt. Indian Cucumber. Not the most distant resemblance to Cucumber, unless in the slight odor of the plant ; a single species, grows a foot high, with 2 whorls of leaves, one close to the flower, and the other at some distance below ; open, dry woods ; very regular in its form ; May. The root is said to be diuretic. *Barton.* This is Medeola *Virginica*, L., Cucumber Root.

Uvularia. L. 6. 1. Bell Wort.

From the Greek diminutive for a *bunch of grapes*, from the cluster of flowers on some species ; chiefly a North American genus. Segments of corolla or perianth with a nectariferous cavity at the base ; filaments very short.

Two rather beautiful species grow in this State. On one, *U. sessilifolia*, L., the leaves are sessile, and on the other, *U. perfoliata*, Mx., the stem appears to run through the leaf ; woods ; May and June.

Streptopus. Mx. 6. 1.

Taken from the preceding genus, and named from the Greek, for *turn* and *foot*, from the twisted foot-stalk of the flowers ; all the species American but one. Anthers longer than the filaments ; berry subglobose ; petiole twisted.

Two species occur in this Commonwealth ; one, *S. distortus*, Mx., much resembles the species of the preceding genus ; the other, *S. roseus*, Mx., Rose Bell Wort, has a stem often 20 inches high, branching into 2 parts, and of a fine form, leafy and holding many small, rose-colored flowers ; woods and hills ; May.

CONVALLARIA. L. 6. 1. Lily of the Valley. Solomon's Seal.

Named from the common place of growth, from the Latin for *valley*. This genus has been divided into Smilacina, Desf., from its resemblance to Smilax, and Polygonatum, Desf., from the numerous joints or articulations of the stem ; but we describe all the species under Convallaria, 7 of which belong to this State, and which comprise half of the genus. They have a general resemblance, but differ greatly in size. Flower 4 – 6-parted, and stamens 4 – 6 ; berry 2 or 3-celled.

C. bifolia. L. Dwarf Solomon's Seal. With a stem 4 – 6 – 8 inches high, and commonly 2, often 3 sessile leaves, and terminating in a cluster of small, white, 4-parted flowers, with 4 stamens ; spreads over the woods on hills and valleys, in May ; berry 2-celled.

C. trifolia. L. Three-leafed Solomon's Seal. Scarcely larger than the preceding, with 3 sessile leaves, and white, 6-parted flowers, and with 6 stamens, distinguishing them from the preceding ; is far more rare in the woods, but not less beautiful ; June.

C. racemosa. L. Clustered Solomon's Seal. With a flexuous stem, 12 – 18 inches high, and alternate leaves, sessile and oblong-oval, nerved and pubescent ; has very small greenish-white flowers in a clustered panicle or raceme ; woods ; June.

C. stellata. L. Star-form Solomon's Seal. Has a stem a foot high, smooth, articulated, with oval-lanceolate and clasping leaves ; flowers white, terminal, 3 – 8, in a beautiful raceme ; banks of rivers ; June.

C. multiflora. L. Common or Giant Solomon's Seal. Stem round, 2 – 6 feet high, with alternate and clasping, oblong-oval leaves, and flowers growing in the axils of the leaves, and sometimes the foot-stalks many-flowered ; root horizontal, fleshy, and often looking as if the ends had been bitten by worms ; in some request as a mild, secernent stimulant ; flowers bell-form,

6-cleft, greenish, large and pendent towards the top of the finely arched stem ; hedges and banks of streams ; June. Berries dark-blue. The name *Solomon's Seal* is taken from a cross section of the knotted part of the roots, which has been imagined to resemble the seal of that king.

C. pubescens. W. Much resembles the last, but smaller, with clasping ovate leaves, pubescent beneath ; flowers axillary, footstalks about 2-flowered ; May.

C. canaliculata. W. Distinguished from the last by its channelled and angular stem.

C. umbellulata. Mx. Lily of the Valley. A beautiful plant, with its long and wide, deep-green leaves, ciliate or hairy on the edge and keel, supporting a short scape of yellowish flowers, often abundant on the sides of hills, and in open woods ; June. *C. borealis*, and Dracæna *borealis*, Willd., seem to be only varieties of this species. At least, on the hills of Berkshire County we find the plants answering to both descriptions, and yet scarcely differing from each other. The *C. majalis* of Pursh, is probably only a variety of the same *C. umbellulata*, Mx. Let no one suppose that the Lily of the Valley, mentioned by Solomon, wholly unknown, can be this plant, which does not grow in the East.

Trillium. L. 6. 3.

From the Latin for a *tissue of three threads* of different colors, as the stem has 3 leaves, the calyx 3 sepals, the corolla 3 petals, the stamens are twice 3, and there are 3 styles. A North American genus of about a dozen species, of fine appearance, but rather offensive odor.

Calyx spreading, with 3 sepals ; berry 3-celled. Four species are credited to this State ; grow in woods, but capable of cultivation, though not very easily propagated. They are a great addition to the beauty of open woods in the season of their flowering. Roots highly emetic.

T. erectum. L. Wake Robin. Very common in the

woods in May, nearly a foot high, with 3 large broad-rhomboidal leaves ; flowers commonly dark-purple, sometimes white, greenish on the outside, standing on a footstalk a little declined, and rather nodding. Medicinal.

T. cernuum. L. Nodding Wake Robin. Has its flower hanging on a recurved foot-stalk, with lanceolate and recurved white flowers, with a stem a foot or more high ; leaves broad, rhomboidal, rather obtuse ; woods ; May.

T. grandiflorum. Salisb. Large Flowered. Stem near a foot high, with large, white, or reddish flowers, having spatulate and lanceolate petals, and much longer than the calyx ; leaves sessile, broad, rhomboid-ovate ; moist woods ; May ; Pelham. It has not been found in Berkshire County, though it abounds in the State of New York.

T. pictum. Ph. Painted or Variegated Wake Robin. *T. erythrocarpum.* Mx. Grows about 8 inches high, and has white flowers, with purple veins, the petals being oval-lanceolate, acute, and recurved ; woods ; May. A beautiful flower.

ORDER 250. DIOSCOREÆ. The Yam Tribe.

Diœcious ; perianth 6-cleft, equal ; stamens 6, rising from the base of the perianth ; ovary inferior, 3-celled ; style 1, and stigma 3-parted ; leaves with reticulated veins ; flowers small, in spikes.

Dioscorea. L. 20. 6.

Named in honor of Dioscorides, a Greek physician, supposed to have lived in the time of Nero ; a very important group of plants in this genus, found chiefly in tropical regions. Capsule 3-celled, triangular, compressed ; seed membranaceous on the margin.

D. villosa. L. A twining vine, delicate, turning from right to left, with alternate or opposite whorled and cordate leaves, pubescent beneath, 9-nerved ; rises sometimes 12 feet ; lower

leaves whorled ; flowers small, in axillary panicles ; woods ; May. Vicinity of Boston, Concord Turnpike. *Big.*

The Yam, so important an article of food in tropical countries, belongs to this genus.

ORDER 251. LILIACEÆ. Lily Tribe.

Perianth or corolla 6-petalled, regular, sometimes cohering in a tube ; stamens 6, under the germ, and style 1, and stigma simple ; ovary superior, 3-celled, many-seeded ; fruit dry, capsular, 3-celled, with flat seeds ; flowers large, often solitary, commonly with fine colors ; leaves with parallel veins.

Abound in the temperate parts of the Northern hemisphere ; distinguished for their beauty, but possess few important properties.

Lilium. L. 6. 1. Lily.

Perianth bell-form, 6-divided, colored, and each segment has a nectariferous line through the middle. About 20 species have been described ; named from the Celtic for *whiteness*, as some of the flowers are very white.

L. Philadelphicum. L. Red Lily. Grows in woods and meadows, about 20 inches high, with erect flowers of a deep-orange color, spotted with red ; leaves lanceolate, whorled, or scattered ; July.

L. Canadense. L. Yellow Lily. Grows in meadows, 2 feet high or more, leaves nerved and in whorls, with several nodding flowers. When the flowers are very many, and arranged in a pyramidal form, as they frequently occur, it forms probably the *L. superbum*, L., as suggested by Dr. Beck and others ; it is, then, a splendid plant. Both of these species would amply repay cultivation.

L. candidum. L. White Lily. From the Levant ; has splendid white flowers.

L. bulbiferum. L. Orange Lily. From Italy, is another beautiful plant in gardens.

L. tigrinum. Hort. Kew. Tiger-spotted Lily. From China, where it has long been cultivated; is the most splendid of the genus; propagated by its roots, and by the globular bulbs which are produced in the axils of the leaves. Its beauty has rapidly extended it over the country.

Tulipa. L. 6. 1. Tulip.

The old French name of the plant is *Tulipan*, derived undoubtedly from the Persian name of nearly the same sound. Two species are cultivated for ornament, *T. suaveolens*, L., the sweet-scented, and *T. Gesneriana*, L., named after Gesner, a botanist of Zurich. The latter has been cultivated to a great extent. These species came from Turkey and the Levant into the Northern countries of Europe, nearly three centuries ago. Cultivation has produced a great number of varieties, and these have been sold at most extravagant prices. The Tulip mania was at its height in England nearly two centuries since. The plants are now greatly sought after, and much cultivated. In this country, the florists have carried it to considerable extent within a few years past. Enormous prices were formerly paid for favorite varieties. "Twelve acres of land were covenanted to be given by one person, and 4500 florins, besides a new carriage with horses and harness, by another, for a single tulip bulb, the flowers of which should possess certain almost ideal properties." *Encycl.* While it cannot be doubted that the beauty of nature is formed to be admired and enjoyed, it is certain that the cultivation of these natural beauties is a privilege and gratification when kept within its proper limits. The admiration of flowers has a moral influence, as well as being an exercise of taste.

Erythronium. L. 6. 1.

Named from the Greek for *red*, on account of the color of the flower and leaves of some of them.

E. Americanum. Sm. Adder Tongue. Dog-tooth Violet. This beautiful single flower stands nodding on a stem about 8 or 10 inches high, of a fine yellow color, spotted near the base, with 2 long glossy and spotted leaves at the root of the stem, which

give the plant the first English name. Grows abundantly in open woods, and is one of the early flowers. Michaux supposes this plant to be identical with the European, *E. dens-canis*, but President Smith, of the Linnæan Society, judged otherwise, and gave the above name to our plant. Under this name it is described by Torrey, Beck, and others. See Bigelow's "Medical Botany."

HEMEROCALLIS. L. 6. 1. Day Lily. Garden Lily.

Named from the Greek for *day* and *lily*, and often called Garden Lily, to distinguish it from the Lily of the fields. Though the flower resembles that of the Lily, it is far removed from it. Two species have been introduced from Asia, *H. flava*, L., and *H. fulva*, L. They have not very delicate flowers; but their tall, erect stem, and conspicuous, yellow and tawny flowers, and their long, smooth, sword-like leaves, pointing upwards, have long made them favorite plants for borders and walks.

POLYANTHES. L. 6. 1.

Named from its many flowers, and, from its tuberous root, *P. tuberosa*, L., is a fine parlour plant, with beautiful flowers, and now not very uncommon. The fragrance of this plant is delicious, and is much more perceptible after sunset. Perianth funnel-form, incurved; stamens 6, inserted in the throat of the perianth. A native of Ceylon.

ORDER 253. RESTIACEÆ.

Perianth inferior, 2–6-parted, rarely absent; stamens 1–6, often 2–3, attached to the corolla; fruit capsular or nut-like; culms naked, oftener sheathed; leaves simple, narrow, or none; flowers aggregated, commonly having the stamens and pistils in different plants. Plants belong chiefly in the Southern hemisphere.

ERIOCAULON. L. Pipe Wort.

From the Greek for *wool* and *stem*, from the woolly stem of some of the species. Flowers in a compact, scaly head.

Of the 2 species in this State, *gnaphalioides*, Mx., and *pellu-*

cidum, Mx., neither is yet of any consequence ; grow in ponds ; flowers distinct. No known use.

ORDER 255. TYPHACEÆ. The Bulrush Tribe.

Flowers along a naked stem or spadix, the 3 – 6 stamens in one flower, and the pistils in another, surrounded by a 3-parted perianth ; ovary superior, 1-celled, with a short style, and dry fruit ; stems without knots or joints ; leaves long, stiff, sword-form, with parallel veins ; marshes and ditches, chiefly in Northern countries ; not of great use.

In this country, this is a small tribe of two genera, which have, to the eye of most persons, few common characters to unite them.

Typha. L. 19. 3.

From the Greek, for *marsh*, its natural habitation ; flowers in a long, dense, cylindrical spike. Two species in this State, indigenous also to a great part of the world.

T. latifolia. L. Cat Tail. Reed Mace. A splendid reed, tall, erect, with very long, flat, erect leaves, and a terminal spike of insignificant flowers in great abundance. The sterile flowers form a dense cylinder 4 – 6 – 8 inches long, at the end of the stem, while the fertile flowers form an equally dense cylinder immediately below. The pollen, which falls in great plenty from the upper to the lower cylinder, to fructify the fertile flowers, is very combustible, and flashes on the application of a candle. The leaves, which are finely shaped, colored, and beautiful, are extensively used in the manufacture of flag-bottomed chairs ; also by coopers to make close the joints of casks ; for making mats, baskets, and for thatching ; and the hairy covering of the fruit is sometimes used for beds, or rather, mattresses, a poor substitute for hair, moss, husks, &c.

T. angustifolia. L. A narrow-leafed plant, leaves channeled, fertile spike a little removed from the other. Found in similar situations in the vicinity of Boston, but not known in the western part of the State.

Except the Cat Tail, this genus has little value. The first species is spread extensively over Europe and Asia; the second is found in England, and also in New Holland.

Sparganium. L. 19. 3.

From the Greek, for *band*, on account of its ribbon-shaped leaves; only a few species. Flowers in a globose head; sepals 3 – 6.

S. ramosum. Sm. Burr Reed. Stem a foot or more high, round, rarely straight, with barren flowers towards the top, and the fertile below, and both at little distances along the stem; leaves nearly radical, triangular towards the base, and sword-form upwards; fruit in a dense, large, globose, burr-like head, which separates it from the other reeds; July.

S. angustifolium. Mx. Narrow and long leafed, lightly floating on the surface of water; vicinity of Boston.

S. Americanum. Nutt. Lake Burr Reed. Grows near New Bedford, in ponds; stem nearly simple, much like the first species.

None of these species have been employed for any valuable purpose.

ORDER 256. AROIDEÆ. Arum, or Wild Turnip, Tribe.

Stamens and pistils in separate flowers on a spadix; perianth often wanting, or of 4 or 6 divisions; ovary superior, 1-celled; fruit succulent or dry; leaves sheathing at the base; spadix commonly in a spathe.

These plants abound in tropical regions; in temperate regions relatively rare.

A very acrid substance is contained in most of the species, and sometimes they are very poisonous. This property is destroyed by roasting the roots, and they are then healthful, pleasant, and nutritious; at least some of them. One species yields one

kind of Yam, a common article of food in tropical regions. Several of the genera are among our native plants.

Arum. L. 19. 1.

Spathe 1-leafed, rolled in at the base, turned over the flower-stem or spadix, which is naked at its extremity, while the ovaries are at its base, and the stamens above them ; berry 1-celled.

Latin form of the Greek name for this plant. The genus belongs chiefly to hot climates ; roots hot, acrid, fleshy, some of them eatable ; a singular, and somewhat beautiful genus.

A. triphyllum. L. Wild or Indian Turnip. Wake Robin, of the English. This plant grows in very different situations, in the alluvial soil of rivers and in damp upland woods, and sometimes in rather wet places. It attracts attention from its singular form, sending up from its short stem 1 or 2 stalks, each bearing 3 long and acutish leafets, becoming glaucous or sea-green. Its dense mass of insignificant flowers is concealed by a cylindric spathe, or inclosing leaf, which terminates in a large, hood-like leaf, turned down and over the flowers, and often beautifully variegated. A club-like projection extends beyond the flowers, as it were to remove the hood at such a distance from the flowers as to afford them room and free circulation of air with protection. It flowers in May, and in August it shows a dense head of red berries. Root fleshy, bulbous, and the dark wrinkled skin on the under side of the root is its natural, and not diseased form. The acrid quality of this plant is even violent, and extends to all parts of it ; by drying, roasting, or boiling, it loses this property to a considerable extent. The dried root is in popular use, being grated and taken as grateful and warming to the stomach, and tending to allay a feverish disposition. Boiled in milk the roots are a popular, but not very sure, remedy for consumption. Bigelow's " Medical Botany."

A. atrorubens. L. A smaller, and somewhat fetid plant ; probably only a variety of the preceding.

A. dracontium. L. Green Dragon. Seems not to be a native of New England ; cultivated at Deerfield.

A. Virginicum. L. Rare in the western part of this State; found in Belchertown. This plant has received several names, and is very likely to be carried to the genus CALADIUM, as described by Persoon; swamps, and borders of ponds; sending up several radical leaves a foot high, so as to have the appearance of one species of Sagittaria, Arrowhead; but from this, Dr. Bigelow distinguishes it by easy characters. By Cooper it was named Lecontia *Virginica.*

ORONTIUM. L. 6. 1.

Crowded flowers in a cylindric spathe; perianth 6-petalled, naked; style and stigma scarcely any; utricle 1-seeded.

From the Greek name of an unknown plant; only one species in North America, and one in Japan.

O. aquaticum. L. Golden Club. Floating Arum. Its dense yellow flowers give one English name; scape or stem long, cylindric, rising from ponds or streams, producing flowers of offensive odor; leaves radical, large, lanceolate-ovate; May. "Southwick, Dr. Porter."

POTHOS. Mx. 4. 1.

Derived from the native name of the plant in Ceylon; the genus seems generally to be different from the only plant of the name in North America. Hence the latter was named *Symplocarpus,* Salsb., and has also passed under other names. Spathe ventricose, twisted.

P. fœtida. Mx. Skunk-cabbage. The particular name indicates a prominent property of the plant so well known, and common in wet, low grounds, as an offensive weed throughout the country. Early in March its thick and fleshy roots send up a roundish head of small flowers, enclosed in a thick and twisted envelope or spathe of a purple color, only a few inches long, and opening by a natural seam or suture. In three or four weeks, the leaves appear rising on short foot-stalks from the root, and become very large, like cabbage leaves, giving, as well as the rest of the plant when bruised, the offensive odor. The roots and seeds are

strongly antispasmodic, also expectorant ; useful in asthmatic affections, but unsafe as a medicine. Its acrid quality produces very unpleasant sensations in the mouth. Bigelow's "Medical Botany."

Calla. L. 19. 12.

Spathe flattish ; spadix covered with flowers ; berry many-seeded. Pliny named some plant Calla, perhaps of this family, probably from its beauty.

C. palustris. L. Water Arum. A singular and rather beautiful plant. Its creeping roots, scarcely passing under the surface of the sphagnous swamps in which it delights, send up foot-stalks bearing a single mass of white flowers, which are surrounded in their rudimentary state with a strong envelope or spathe of a fine white color, and soft texture on the inside, and forming a protection to the young flowers. Roots acrid ; but they lose this property by drying or boiling, so that they were used, according to Linnæus, by the Laplanders to form a sort of bread. Indigenous also to the northern parts of Europe.

C. Æthiopica. W. A larger and taller plant, with its glossy and shining deep-green leaves, raised with great care in greenhouses and parlours, will recall the thoughts to the other humble native of our country, and of Europe. The exotic is from the Cape of Good Hope.

Acorus. L. 6. 1.

Supposed to relieve diseases of the eye, and hence its name from the Greek. Spadix cylindric, covered with flowers ; perianth 6-petalled, naked ; ovary 1.

A. calamus. L. Sweet Flag. The meaning of Calamus is *a reed*, and the name is given to this plant from its resemblance to the genus Calamus. Common beside slow streams and in wet grounds. Its sword-shaped leaves ; its solitary flower-stem or spadix, projecting from a leaf, and aromatic and pleasant to the taste when young ; its zigzag roots with their numerous fibres, aromatic

and stimulant, are well known. The root is often used as a stomachic, and as a remedy for the cholic. The flavor is improved by drying. Indigenous to Europe and Asia as well as North America. It was said by Linnæus to be the "only aromatic plant of northern climates."

ORDER 258. FLUVIALES.

Stamens and pistils in the same or different flowers; perianth of 2 or 4 divisions, sometimes falls off early in the flowering; ovary superior, with the stamens rising from under it; fruit dry, 1-celled, 1-seeded; aquatics, with flowers small and unattractive; more resemble flowerless plants than any yet mentioned; leaves very cellular, with parallel veins. The order is named from the habitation of the plants.

Najas. L. 19. 1. Fluvialis, Persoon.

Perianth wanting; flowers with stamens, and others with pistils on the same plant; style 1.

N. Canadensis. Mx. Water Nymph. The popular name might lead one to expect a plant of some beauty. It is a slender, flexible, rather erect, and immersed aquatic, filiform or thread-like, not very common; in stagnant waters; Amherst, Stockbridge. Caulinia *flexilis*, W.

Zostera. L. 19. 1.

Z. marina. L. Grass Wrack. Stem round and flexuous, with roots at the joints, and with long linear leaves; grows in the muddy waters of the sea-coast, sometimes called *Eel-grass.* "A common material for packing, and for stuffing cottagers' cushions." *Lind.*

Chara. L. 19. 1.

Origin of this name unknown, as well as the plant to which Cæsar applied it. *Loudon.* The plants have a rather beautiful appearance as they wave about under water.

Perianth none, flowers very minute; anther sessile and globose,

near the 5 sessile stigmas ; berry 1-celled, many-seeded, situated on the filiform branches or leaves.

C. vulgaris. L. Feather-beds. A slender, flexile plant with a small stem, surrounded at short distances by a whorl of about 8 slender, filiform leaves. As it grows immersed in dense extensive tufts, it looks like a soft bed of feather-like materials, and in running water is a beautifully waving plant. Taken from the water, it becomes very brittle, and has a very putrid odor.

C. flexilis. L. Much resembles the other, is nearly as slender, but a stiffer plant. In stagnant water with Najas ; Stockbridge.

Ruppia. L. 4. 4.

R. maritima. L. Sea Teasel-Grass. Two flowers on a spadix, rising from the leaves ; perianth none ; stamens 4-sessile, and 4 drupes.

In salt marshes near Boston ; a grass-like plant with immersed, linear leaves ; sends its spike-form flower-stem out of the water to present the flowers to the sun ; stem is somewhat spiral, so as to unwind as the water rises, and keep the flower in the air. Named after a German botanist, Ruppi.

Potamogeton. L. 4. 4. Pond-weed.

From the Greek for *near* and *river ;* aquatics, common in Europe and North America ; perianth 4-leafed, no corolla, style wanting, 4 seeds. Nine species are found in our waters. Flower inconspicuous, projecting from the water by its long and porous leaves. Some have floating as well as immersed leaves, and some only the latter ; the stem bearing flowers projecting from the water. Some are coarse plants, some much more delicate. After the time of flowering, the stem is chiefly under water. In some species the leaves are long and narrow, and are beautiful as they wave in running streams.

P. compressum. W. Compressed stem, with linear, obtuse leaves.

P. fluitans. L. Leaves reddish, spadix an inch long ; upper leaves floating.

P. gramineum. Mx. Leaves narrow-linear, flat ; upper whorled.

P. natans. L. Leaves leathery, long-petioled, lower ones linear-lanceolate.

P. perfoliatum. L. Leaves clasping, ovate and cordate.

Plants of little importance. The other four need not be described ; they are *P. heterophyllum*, Shreb., *lucens*, Mx., *pectinatum*, L., and *setaceum*, Ph.

ORDER 259. JUNCAGINEÆ.

Sepals and petals herbaceous, rarely absent ; stamens 6 ; ovaries 3 or 6, superior ; fruit dry, 1 or 2-seeded ; leaves ensiform, with parallel veins ; flowers in spikes and racemes.

The plants of this order are widely spread over the world, in marshy places ; properties of no consequence.

Scheuchzeria. L. 6. 3.

Perianth 6-parted ; ovaries 3–6 ; capsules compressed, inflated, 2-valved. From Scheuchzer, a German botanist.

S. palustris. L. About a foot high, with leaves linear, somewhat 2-rowed, and sheathing ; flowers greenish-yellow, in a small terminal raceme ; swamps ; July. "Belchertown."

Triglochin. L. 6. 3.

From the Greek for *three* and *point*, on account of the triangular capsule ; only a few species, widely diffused.

Perianth double, 3-leafed each, the inner petal-like ; stamens 3 or 6 ; capsules 3 or 6, 1-seeded.

T. maritimum. L. Sea Arrow-grass. Grows about salt marshes, with rush-like leaves, smooth and roundish, with a sweet-

ish taste. This plant is relished well by cattle, and may form very good food for them, according to the recommendations of it. *Big.*

ORDER 260. PISTIACEÆ. Duck-weed Tribe.

The simplest of the flowering plants ; a mere leaf or leaves, with root-like appendages, floating on water. Pistia, from which the order is named, grows in India and in the West Indies. Flowers 2, a single stamen and pistil, rising from the margin of the leaf ; properties of no consequence.

Lemna. L. 2. 1. Duck-weed. Duck-meat.

Stamens 2, near the pistil ; utricle 1 – 5-seeded ; floating.

L. minor. L. Leaves 2 or 3, scale-like, entire, small, smooth, with a single undivided fibre or root passing into the water but not into the earth. Often covers many rods of ponds.

L. polyrhiza. L. Water Flax-seed. Often mixed with the other ; rather larger, firmer union of leaves, which send out several fibrous roots ; abundant.

L. trisulca. L. Floating like the others ; leaves half an inch long, thin, mostly pellucid, with a single root on the under side, sending out a stem from a slit in the leaf, and thus producing another leaf, and proliferous in this manner, and appearing like leaves strung along or attached to a filamentose stem.

All these species of Lemna, originating in seed, are propagated by leaves produced from leaves already formed ; flowers very minute, very rarely seen, appearing in spathe-like openings in the side of the leaves ; a very curious genus of plants, but of little known use.

TRIBE II. GLUMACEÆ,

(Or plants bearing glumes or chaff.)

By Linnæus the chaff of the glumiferous plants was considered as the calyx, or corolla, or both, because it corresponded in place to these organs in other plants. Although these organs are associated with the other common parts of the flower, they are not now considered as the same, but as bracts, imbricated or lying over each other. We are familiar with these glumaceous organs in the chaff of rye, wheat, oats, barley, &c.

These glumiferous plants are disposed in two orders ; 1. the GRAMINEÆ, or *Proper Grasses*, and 2. the CYPEROIDEÆ, or *Sedge Grasses*. By the common observer, both are blended under the general name of the Grasses.

In both these orders, the essential organs of fructification are, generally, found in each flower, though these organs are occasionally on different plants, or different parts of the same plant. Among the Sedge Grasses, the genus CAREX, of which more than 160 species have been found in North America, never has the stamens and pistils, the essential organs, situated in one flower, but the plants are monœcious or diœcious.

The Proper Grasses have cylindrical or hollow stems, with a large portion of silex deposited in the outer coat of the stem, as in wheat, rye, reed, cane, &c. The stems are sometimes so siliceous as to strike fire with steel. Their seeds contain a large quantity of farinaceous matter, which renders them nutritious as the food of man and of various animals. That the seed of wheat, rye, rice, &c., are so exclusively used for food, is because those seeds are larger, and the plants are more readily cultivated, and yield a greater quantity of seed to the same space of land, and not because others do not contain farina to the same extent.

In the Sedge Grasses, the stems are not fistular or hollow, as in the others, but are angular, solid, or with a pith extending through them. The seeds, too, are mostly destitute of the farinaceous nutriment found in the other order of the glume plants. The Sedges, though many species are eaten by cattle as fodder, are not relished by them except in their young state, and are

even then neglected for the more common kinds of the Proper Grasses.

The Proper Grasses are arranged in about 80 genera, and form near 340 species. The Sedge Grasses are in 14 genera, and more than 250 species. Both orders are most extensively diffused from the equator to the limits of perpetual snow, on hills and mountains and valleys, in woods and ditches, and ponds and open fields, and sands and marshes of the seashore. The Proper Grasses are more abundant in the temperate and northern regions, while the Sedges become more abundant as we approach the tropics, and within the tropics. Of the latter, too, the *Carices* and *Scirpi*, which are numerous at the North, become less abundant towards the equator. The species of both orders in North America are nearly 600. This wide diffusion of the plants, which are of the last importance to man and beast, cannot be contemplated without a direct reference of the mind to the munificent goodness of the great Creator.

Of the most important grasses, some are known to have been introduced from the eastern continent, and many more are supposed to have been so, while others were found originally in this country. Thus, rice was introduced from Asia, and the sugar-cane from India, while Zea, our Indian corn or maize, is a native of America.

The grasses may be considered,

1. As food for man. Rice, maize, wheat, rye, barley, and oats, are the principal articles of food over five districts of the earth, from south to north.

In the torrid zone, rice and maize are great sources of food. Their cultivation extends into the temperate zone, where wheat is associated with them. At length rice disappears, and the wheat prevails associated with maize ; and more to the north, rye presents itself. Wheat and maize chiefly disappear in higher latitudes, and rye prevails, attended by barley and oats, till the latter forms the chief article for bread. In Russian America, at latitude 57°, rye and barley are ripened ; while on the east side of the continent they do not grow in so high a latitude. In Sweden and Norway, Scotland and Siberia, oats and barley are cultivated farthest to the north.

More inhabitants are supported on the globe by rice, than by

any other vegetable, and perhaps as many as by most of the others together. The range of latitude through which rice is found, is considerably less than that of maize.

With very few exceptions, the seed of the proper grasses, so far as is known, is healthful. A very troublesome weed in England, a grass, Lolium *temulentum*, and one or two species of Bromus, are said to have poisonous seed.

Various other grasses merit a moment's notice.

Millet is cultivated for its seed in Europe, and Eleusine *coracana*, on the Coromandel coast. Sugar, and its kindred articles, are obtained from the grass Saccharum. Others also contain much sugar, as one species of Holcus ; and, by fermentation of the seeds of several grasses, much sugar is developed.

Some grasses are finely aromatic, as Sweet Vernal Grass, and Holcus *odoratus*, both which contain benzoic acid, which exhales from them ; also Cyperus *odoratus*.

In adverting to the use of the grasses for the food of man, it should be remarked, that the Potato, Buckwheat, Yams, Manihot, Batatas, Bananas, Breadfruit, several Palms, and some esculent species of Arum, by means of which so many millions are supported, belong to other orders of the vegetable kingdom. The same remark should be made in respect to Pea, Bean, Cabbage and Turnip, Pumpkin and Squash, and various other plants.

2. The use of the grasses in the arts and conveniences of living.

The broom-corn has become an article of necessity. The Arundo *arenaria*, and Carex *arenaria*, are of great use by their roots, in making firm the sandy shore of the sea, and the former is often wrought into ropes, threads, mats, bags, and lately into paper in this State. Every form of straw hat, from the finest Leghorn, and its equally fine imitation from the other grasses, to the coarsest kind, reminds us of this delicate use of the straw of rye, wheat, red-top, &c. The papyrus of the Egyptians, was from a sedge grass, Cyperus *papyrus*, L. Several of the grasses are used in the manufacture of chairs and mats, for wicks of candles, for the stuffing of sofas, and the like. The starch of wheat, and the gluten of rye and wheat, as paste, are of great consequence in several arts.

3. Food for animals, domestic animals only. The use, too, of the herbage, not of the seed, is here to be considered, in respect to cattle, horses, sheep, &c., or as pasturage and hay.

The cultivated grasses are chiefly employed for this purpose. The two varieties of red clover, the species of white, as well as Russia clover, Lucerne, &c., belong to other orders. In our fields are chiefly cultivated several kinds of Poa, Agrostis, or red and white top, Phleum or Timothy grass, Alopecurus or true Fox-tail grass, in small quantity, Festuca, Aira, Panicum, Cinna, Wild Oats and Wild Rye, Briza, Dactylis or Orchard grass, Andropogon, several species of Cyperus, and 10 – 30 species of Carex, found in most large meadows. On the salt marshes are various kinds of coarse grass, among which a species of reed-grass is prominent. In the Southern States are many species of Cyperus, and of Andropogon or Broom-grass, the latter being widely spread over the low country, and giving the dry and lifeless appearance of an arid soil in winter.

4. In respect to the beauty the grasses give to fields and woods. While the useful is the most important, the pleasing is not to be neglected. If, then, we cast our eyes over the waving fields of summer, it is the multitude of the grasses which delights us. Though the flowers of the grasses present no attractions, yet, associated as they are with the very support and comforts of life, no splendor of flowers of the other orders would long be compared with the beauty of the fields, which wave in the winds their rich treasures, for the support of "the cattle on a thousand hills," and of "man, who goeth forth to his work till the evening," the lord of all these lower works.

In the tropical regions, some of the grasses reach a great magnitude, as some of the reeds are 50 – 60 feet high, and 6 or 8 inches in diameter. Like the tree-ferns of the same region, these are tree-grasses. The leaves are more expanded also, and the appearance more like that of some other orders, and the flowers become larger and more beautiful. In and near the torrid zone, the grasses grow more as separate individuals, and the number is proportionably less. The thick, dense, grassy turf, which covers the Northern and Middle States, disappears at the South. What is gained in the magnitude of the grasses, is lost in the

beauty of the green that covers the earth at the North as a splendid carpet. The difference between the grass fields of the North and South, in this respect, is very great, and vastly in favor of the beauty of the North. The beautiful meadows of Europe are far more common in the middle and northerly part, than in the south of it. In either of the continents, this is counteracted in part by elevation, as the higher districts of more Southern climes resemble the less elevated regions at the North. The rich verdure of the grass fields, the green turf of New England, is unknown in the West Indies, although their vegetation is more luxuriant. The inhabitants talk, indeed, of the green of their fields with all propriety ; but it bears no comparison with the rich grassy carpet of the North.

The beauty of the Western prairies requires only an allusion, for us to connect it with the endless variety and multitude of the grasses, as well as other plants.

In our forests, these grasses form the beauty of the groundwork, as they spring up in abundance on all the open spots, on the sides of sunny hills, beside the running streams, and around and over the marshes, and wherever the underwood has been by any means removed. On the shores of the Arctic Ocean, and through the forests watered by the great rivers of the North, around Hudson's Bay and the Great Lakes, and to the very summits and snows of the Rocky Mountains, the enterprising explorers have found the grasses, spreading over the face of nature their usefulness and beauty. About one fourteenth of all the flowering plants are grasses ; so profusely has the beneficent Author of nature provided for the wants and pleasure of man.

ORDER 261. GRAMINEÆ. The Grass Tribe.

Stamens and pistils commonly in the same flower, enclosed by imbricated bracts ; exterior bracts or glumes commonly 2, and unequal, alternate ; next interior bracts, or paleæ, the corolla of Linnæus, 2, alternate, the down simple ; the inmost bracts or scales, at the base of the simple ovary, 2, or 3, or none, distinct or united ; stamens 1 – 6, usually 3 ; styles 1 – 3, usually 2, with

feathery stigmas ; stem or culm cylindrical, hollow, except at the joints ; leaves alternate, with a divided or split sheath.

Of the plants of this order, 121 species, under 46 genera, are credited to Massachusetts in the "Geology" of the State, by Professor Hitchcock. These are more than one third of all the grasses then known to be growing in North America. The original genera of the grasses have been greatly cut up and divided, partly from a more careful examination of the characters and habits of the plants, and in part from imaginary, or unessential, or artificial characters. The species credited to this State are correct, and few published additions have been made to them. Many of the cultivated grasses, however, were not introduced into the Catalogue in the "Geology."

Agrostis. L. 3. 2. Bent-grass.

Glume naked, 2-valved, 1-flowered, with the valves longer than the 2 membranous paleæ or interior chaff, which enclose a single seed.

Named from the Greek for *field*, and hence applied by the Greeks to most grasses, on account of the place of growth.

A. vulgaris. L. The well-known Red-top.

A. alba. L. The White-top Grass. This and the preceding have been introduced from Europe ; but the former is spread over hill and dale, in pastures and meadows, being one of those most extensively diffused. The fine green sward or turf of New England, is greatly composed of this grass, as it forms the beautiful green carpet spread in spring and autumn over the alluvial meadows. The White-top is far less abundant than the other. Both are to be added to the 10 species in the "Geology." The former grows with great closeness, so that it yields a large swath in the meadows, though it is not a tall grass. It throws out abundance of leaves from the roots and along the lower part of the culm, and forms an excellent hay for cattle, but is too fine a grass for horses. It is often called English Grass.

The *Fiorin* Grass, so highly commended in Ireland, seems to be only a variety of *A. alba.* In England, it has not succeeded

according to the expectations excited by its praises. Indeed, *A. vulgaris* does not appear to be a grass so highly valued in England as in this country.

The 10 species of the "Geology," are far less abundant than these 2, which are valuable for pasturage.

Agrostis *stolonifera*, Fiorin Grass, is recently introduced.

A. polymorpha. Huds. Fiorin Grass. A variety of *A. alba*, and the same as *A. decumbens*, Muhl., according to Torrey.

A. lateriflora. Mx. Grows 2 feet high or more, with swelling knots or joints, branching, with lateral and terminal panicles of rather dense flowers.

A. sobolifera, Muhl., which is much like the preceding, is probably to be added as one of our grasses about fields and borders.

A. longifolia. Torrey. Is 2 – 4 feet high, erect, simple, with leaves often 2 feet long, tapering into a fine extremity ; sheath smooth ; panicle terminal and lateral, with compressed flowers. Deerfield.

A. sylvatica. Torrey. Is 2 – 3 feet high, erect, branched and diffuse, with a slender filiform panicle ; glumes shorter than the paleæ, with awns longer than the flower. Hills of Berkshire County. While it resembles *A. lateriflora*, and is *A. diffusa*, Muhl., it is chiefly to be noticed for its spreading branches. The other species are *A. canina*, W., *clandestina*, Spreng., *tenuiflora*, Willd., *Virginica*, L.

Polypogon. Des. 3. 2.

Taken from Agrostis, and named from the Greek for *many beards ;* as the glumes and the lower paleæ terminate in a bristle.

P. glomeratus. W. Has an erect, compressed stem, and close or not spreading branches, and a panicle, dense, interrupted, and conglomerated ; bog meadows ; August and September.

Trichodium. Mx. 3. 2.

From the Greek for a *hair*, on account of the smallness of the stem. Glume 2-valved, larger than the single palea; stigma nearly sessile.

T. laxiflorum. Mx. Tickle-grass. Spread on dry and rather poor pastures; often 2 feet high, slender, leafy towards the base, and dividing into very slender and leafless branches; May; June. Should be kept down by feeding, as its stem otherwise becomes too wiry for cattle to eat; forms a handsome turf; July.

T. scabrum. Muhl. A foot or more high, often geniculate, or bent like a knee at the joints; branched, and quite diffuse in its panicle; glume serrated and rough on the keel; dry woods; August; not abundant. Agrostis *scabra*, Willd.

Aira. L. 3. 2.

A. flexuosa. L. Hair-grass. The only species now belonging to the genus; an erect, elegant grass, as it stands waving in the air; not abundant, grows in tufts in the valleys and on hills. On the east side of Saddle Mountain, at an elevation of more than 2000 feet above the base, it grows in large tufts. It is too hard a grass to be useful as food for cattle, except when young; June.

Trisetum. Pers. 3. 2.

Taken from Aira, and named from the 3 awns or beards of the palea, 2 at the tip, and 1 from the middle of the back; the glume includes 3 – 5 flowers, and is as long as they are.

T. palustre. Tor. Grows in wet meadows, and has a contracted, nodding panicle; June; rather rare.

T. purpurascens. Torrey. Grows in mountain meadows, 2 feet high, leafy, somewhat branched; leaves narrow; not abundant.

URALEPSIS. Nutt. 3. 2.

U. aristulata. Nutt. Taken also from Aira. Glumes 2, shorter than the florets, including 2 – 3 flowers; paleæ 2, very unequal, villous on the margins; florets standing on short stems in the glumes; panicle simple. The culms are cespitose or growing in dense clusters, with axillary and terminal panicles, scarcely extending beyond the sheaths; sea-coast, and sandy fields; New Bedford; August. The plant secretes a viscid, sour matter, of strong taste. *Torrey.*

KŒLERIA. Pers. 3. 2.

Glume 2 – 3-flowered, 2-valved, beardless; valves shorter than the lowest floret; paleæ 2; spikelets compressed.

Named after Professor Koehler of Mayence, a writer on the Grasses; rather handsome plants. *Loudon.*

K. Pennsylvanica. DC. Grows in rocky woods, 2 feet high, with a long panicle, flat leaves, and soft, pubescent sheaths; May and June.

K. truncata. Tor. Is 2 feet high, slender, with a branching panicle, loose; paleæ smooth; dry woods; June.

Var. *major.* Tor. Has a large spreading panicle, and broad-linear, long leaves.

Both species taken from Aira, and not very abundant.

ALOPECURUS. L. 3. 2. Fox-tail Grass.

Named from the Greek for *fox* and *tail*, from the resemblance of its spike of flowers to the tail of that animal. The common Timothy Grass has a similar appearance, and is often so called, though its spike does not so much resemble the tail of a fox; and it is a very different plant, and should not trespass on the appropriate name of this plant.

Only 3 species of Alopecurus are known in this country; *A. pratensis*, L., Meadow Fox-tail Grass, is found in rather more wet situations than *A. geniculatus*, L.; both are somewhat procumbent. *A. aristulatus*, Mx., has very short awns; grows near Boston. They afford good food for cattle.

Phleum. L. 3. 2.

P. pratense. L. Timothy Grass. Called by the English Cat's-tail Grass, after the name of an unknown Greek plant, and Timothy, after Timothy Hanson, says Loudon, who carried it to England from New York in 1780. Indigenous to this country; it has become a very important grass for culture, yielding a great abundance of food for the cropping of horses and cattle till the stalks rise, and then a great amount of hay; excellent, especially for horses. As a grass, it contains much nutriment, and is well known, and not too highly valued.

Phalaris. L. 3. 2.

Said to be derived from the Greek for *brilliant*, on account of its shining seeds.

P. arundinacea. L. Ribbon-grass. Beautiful in its variegated striped leaves, of which there is an endless variety, so that no two leaves have been found alike. A native of Britain.

P. Americana. Ell. Much resembles the preceding, grows in wet situations, 3–5 feet high, in large cespitose aggregations, often covering many square yards. Too hard a grass for food, except when young. Scarcely differs from the preceding except in the color of the leaves.

P. canariensis. Canary Grass. From Britain; cultivated, as the Canary bird is very fond of its seed. It is a handsome grass in the gardens.

Anthoxanthum. L. 3. 2.

A. odoratum. L. Sweet Vernal Grass. A common, but not abundant grass in meadows and fields, growing in small tufts, very pleasant in odor from the Benzoic acid in it. Cut in its young state, it makes tolerable hay.

Supposed to be introduced from Britain, and named from the Greek for *yellow flower*, from the color of the spikes; flowers in June.

One species is found in Morocco, and another in Spain.

AVENA. L. 3. 2. Oat.

Origin of the name uncertain; perhaps from the Celtic, *to eat*. *Loudon*.

A. sativa. L. The common Oat, so valuable for food for horses and other animals, and forming the material for bread among so many people in the North of Europe, and for some other preparations for food. "Fourteen pounds of grain yield eight pounds of meal." *Loudon*. Several varieties are cultivated. One, whose flower-stalks are less diffuse, and somewhat twisted, bearing a greener colored fruit, is thought to yield very abundantly. In Europe some other species are cultivated as food for horses.

A. sterilis. L. Animal Oat. Cultivated in gardens as a curiosity, as its spikes with their long awns are sensitive to changes in the moisture of the air. Placed in the hand, they creep about, having a remote resemblance to some animal. From Barbary, and quite singular in this *hygrometric* property.

A. flavescens. L. Yellow Oat Grass. Recently introduced.

A. mollis. Mx. Wild Oat. A small grass of no considerable importance, found in open woods, and along hedges; flowers in June.

DANTHONIA. DC. 3. 2.

D. spicata. DC. Wild Oats. Named after the French botanist, Danthoine. *Loudon*. Taken from Avena; is common in pastures and open woods, a foot high or more; has some resemblance to the common Oat, though its flowers are much more compact; eaten well by cattle, but commonly grows rather sparsely.

ARRHENATHERUM. P. de B. Tall Oat-Grass.

A. avenaceum. P. de B. A tall grass, introduced from Europe, and naturalized in some places. *Big*. Taken from Avena.

A. Pennsylvanicum. Tor. Grows in the same situations as Danthonia, in Berkshire County.

These grasses are not of great consequence.

Cinna. L. 3. 2.

C. arundinacea. L. Reedy Grass. Named from the Greek *to burn* or *heat*, from supposed effects of a plant upon cattle. *Loudon.*

This is a slender, delicate grass, erect, lax, with lax branches of flowers, in moist woods ; appears to be sought for by cattle ; common, but not abundant ; June.

Arundo. L. 3. 2. Reed Grass.

Derived, perhaps, from the Celtic for *water*. *Loudon.* Glume 2-valved, beardless, unequal, naked ; paleæ membranous, 2, with bristles at the base, lower one mucronate ; flowers in spikelets.

A. Canadensis. Mx. Widely spread over wet grounds in this State ; larger than the last ; 3 – 5 feet high, erect, stiff ; in its young state eaten by cattle.

A. coarctata. Tor. Grows about salt marshes.

A. phragmites. L. Common Reed. The specific name is from the Greek for *hedge* or *separation* (*Loudon*), probably from the use of it ; common to Europe and this country. Grows about ponds and in marshes, 6 – 10 feet high, large, with broad and long leaves, and with a large, spreading panicle of flowers and fruit, so as to resemble Indian corn at a distance. In Brazil, the reeds grow from 30 – 60 feet high. The common Cane fishing-pole, imported from France, Spain, Italy, &c., where it grows in abundance, is *A. donax.*

Psamma. P. de B. 3. 2.

P. arenaria. P. de B. Has been taken from Arundo ; grows 2 – 4 feet high, of a sea-green color ; leaves wide and rather short ; close, erect plant ; found in the sands of the sea-

shore, where it sends out its thick hard roots forming a mat of roots to resist the action of the waves, and the motion of the dry sands, and becomes a very important article.

It is widely diffused over the world. In the Hebrides it is formed into "mats for pack-saddles, bags, hats," &c. *Lind.* It is from this grass that paper has been extensively manufactured at Dorchester, and no little credit is due the enterprising manufacturer. It is only wonderful that this grass, on account of its well known strong fibres, had not been long before so employed.

In England it is called *mat-grass*, and the Greek word for *sand* gives it the generic name.

Andropogon. L. 3. 2. Forked Grass.

From the Greek for *man* and *beard*, from the fancied resemblance of the hairs on the flowers to the *beard*. *Loudon.*

A. furcatum. Muhl. Forked Spike. Forked Beard-Grass. Grows in cespitose clusters, with the roots densely interwoven, 4 – 6 feet high, in sandy soil, along hedges, and in alluvial meadows.

The other species, *A. macrourum*, Mx., *nutans*, L., Beard-Grass, *purpurascens*, Muhl., *Virginicum*, L., attract little attention; little used as food for cattle. At the South, they are numerous and abundant, and give to the fields the dry appearance, so different from the green carpet of the North.

Aristida. L. 3. 2.

The 3 species of this genus, *dichotoma*, Mx., *gracilis*, Ell., *purpurascens*, Poir., have little interest.

Stipa. L. 3. 2. Feather Grass.

Named from the Greek for *silky* or *feathery*. The 2 species, *avenacea*, L., *Canadensis*, Lmk., are not abundant.

Trichochloa. DC. 3. 2.

From the Greek for *hair* and *grass*, Hair Grass.

T. capillaris. DC. A beautiful grass, taken from Stipa, with flowers in a large panicle; sandy woods; Deerfield; June.

The panicle of flowers is long and capillary, very slender, purple and glossy ; waves beautifully in the air.

Briza. L. 3. 2. Quaking-Grass.

From the Greek for *balance*, from the balancing state of the spikelets. *Loudon.*

B. media. L. Is a foot or more high, with few flowers on spreading, small, purple branches ; introduced in the vicinity of Boston. *Big.* It is not a grass that promises to be of much utility as food for cattle.

Bromus. L. 3. 2.

" A name given by the Greeks to a sort of wild oat." *Loudon.* This is a genus of plants of little use or of injurious influence.

B. secalinus. L. Chess, or Cheat, or Rye Broom-Grass. This is the well-known chess of the wheat field, especially when the grain, as rye or wheat, is winter-killed. This has given origin to the notion, that wheat in this case changes into this plant ; a notion about as probable as that tobacco changes into cotton. It is singular, however, that the chess should often be so abundant where the rye or wheat is cut off. It is an annual plant. If the farmer does not intend to raise chess, he must have his seed-wheat free from it, and his ground destitute of the seed. When the seed is ground with the wheat, the flour is much injured, and seems to have narcotic powers. *Loudon.*

Three species of Bromus, *ciliatus*, L., *purgans*, L., and *pubescens*, Muhl., are not in sufficient quantity to receive much attention. The seeds of *B. mollis*, L., are said to be deleterious. *Loudon.*

Dactylis. L. 3. 2.

D. glomerata. L. Orchard Grass. From the Greek for *finger*, from the imaginary resemblance of its heads of flowers to the fingers. *Loudon.*

This is a beautiful and well-known grass, 2 or 3 feet high, with a spreading, one-sided top, and much larger towards the bottom, in

shaded meadows and fields ; has a rapid growth, and is considered a valuable grass in England when young. It is not supposed to be indigenous to this country. It can in no way compare with Timothy Grass for grazing, or the value of the crop.

FESTUCA. L. 3. 2. Fescue-Grass.

Fest is the Celtic for *food* or *pasture*, and may be the root of this name (*Loudon*) ; or it may be from *fétu* for *festu*, a straw. *Webster.*

Glume 2-valved, unequal, many-flowered ; inner chaff 2, lanceolate, and the outer one awned at the tip, or sharp-pointed ; spikelets rather flat.

F. pratensis. Huds. Meadow Fescue-Grass. Has a branched, spreading panicle of linear and acute spikelets, with linear leaves ; grows in meadows and fields ; culm 1–2 feet high ; introduced from England.

In this country this is not considered a very valuable grass. Curtis mentions it as one of the six grasses in England for laying down pastures or meadows ; it should be cut when in flower, as it loses, like most grasses, a considerable portion of its nutriment by ripening. *Loudon.*

F. ovina. L. Sheep's Fescue. Is recently introduced as a valuable grass.

F. elatior. L. Much like *F. pratensis*, considerably larger, grows in more wet meadows, and is eagerly cropped by cattle in its young state ; of about the same value.

F. duriuscula. L. Considered a fine grass in England for hay or pasture ; not very common in this State, but coming into notice.

The two other species, *nutans*, W., and *tenella*, W., have little value. *F. tenella*, W., is a low, beautiful, rather stiff grass.

NOTE. The six grasses mentioned by Curtis, are Anthoxanthum *odoratum*, Alopecurus *pratensis*, Poa *pratensis* and Poa

trivialis, Cynosurus *cristatus*, and Festuca *pratensis ;* all but Cynosurus common in this State, and many of them far inferior for culture here to our Timothy Grass.

Glyceria. R. Br. 3. 2.

G. fluitans. R. Br. Floating Fescue. This was taken from Festuca, and is closely allied to *F. elatior ;* grows in wet places, and stagnant water, and its long, narrow leaves float on the surface. The herbage, roots, and seed are grateful to various animals. The generic name is from the Greek for *sweet*, from the pleasantness of the herbage to cattle.

G. acutiflora, Torrey, was found at Deerfield by Dr. Cooley ; much like the other, but a smaller grass.

Cynosurus. L. 3. 2.

Named from the Greek for *dog's tail*, from the form of the spike of flowers. About 20 species are spread over the eastern continent, though but few in one section.

C. cristatus. L. Dog's-tail Grass. Is common in the meadows of Europe, and is rather a favorite grass of the English. The seed of it is now sold to agriculturists, and the value of the grass in this country will soon be ascertained. It yields much more bulk of grass in seed-time, than in flowering ; but its nutriment is far greater when cut in flowering-time, even as 17 to 10. It delights in a dry soil ; fitted for good pasturage. *Sinclair.*

Uniola. L. 3. 2.

U. spicata. L. Spike Grass. Named from the *union* of the glumes. *Loudon.* An American genus found about salt marshes.

Holcus. L. 3. 2.

H. lanatus. L. Woolly Soft Grass. Velvet Grass. Culm 2 – 3 feet high, with a downy covering, very soft ; in meadows at Watertown. *Big.* Introduced. Named from the Greek *to draw*, on the old notion that the leaves would *draw out* thorns from the flesh. *Loudon.* A grass little desired by any animals.

This is one of the grasses, that have polygamous flowers, sometimes both stamens and pistils in the same flowers, and at others not.

Hierochloa. Gmelin. 3. 2.

Glume 2-valved, 3-flowered ; lateral florets bear 3 anthers only, central floret is perfect, with 2 stamens commonly.

Taken from Holcus, whose glumes are 2-flowered, and have dissimilar florets.

H. borealis. R. and S. Seneca Grass. Panicle rather 1-sided, somewhat spreading ; 18 inches high ; wet meadows ; May. Sweet-scented American plant, spread widely over the country, but not of much utility.

Hordeum. L. 3. 2. Barley.

Inflorescence a spike or long dense head of flowers ; spikelets 3 at each joint of the head, 1-flowered, commonly all perfect. Several species are cultivated.

H. vulgare. L. The common barley.

H. hexastichon. L. The head six-rowed.

H. distichon. L. The spike two-rowed.

A well-known use of barley is for malting, for the production of beer ; a drink, which is the bane of England, and is far too often a nauseous compound in this country, ruinous to appetite, and health, and good looks. Beer-drinkers have a loathsome appearance.

Barley flour forms much valued hot cakes for breakfast. Pot barley is a preparation of the seed by grinding off the husk. In the pearl or hulled barley, the seed is left finely round and white ; it is much used in soups and in medicinal drinks. *Loudon.* Its use is comparatively familiar in this country.

H. jubatum. L. Wild Barley. Squirrel-tailed Grass. Culm slender, smooth, about 2 feet high, with rather short leaves ; awns

long and fine, so that the spikes appear hairy and smooth; in marshes; Boston; June. *Big.* This grass is widely spread over North America.

ELYMUS. L. 3. 2. Lime Grass. Wild Rye.

Derived from the Greek *to cover*, from the use of one species in coarse fabrics. *Loudon.*

The 4 species of this grass in this State, *E. Canadensis*, L., *hystrix*, L., *villosus*, Muhl., and *Virginicus*, L., are not abundant, and are of little utility. They usually grow on the sandy banks of streams, or in sandy woods. Most of them are fine-looking plants. *E. glaucifolius*, W., is a tall grass, often 4 – 5 feet high, glaucous color, and, with its long, recurved, and waving spikes, ever attracts attention. It is a variety of *E. Canadensis*, L., according to Torrey; but this seems rather doubtful. At any rate, this noble plant ought to be the species.

PANICUM. L. 3. 2. Panic Grass.

Probably named from the Latin for *bread*, from the use of some species. It is a pretty large genus. At least 16 species, *agrostoides*, Muhl., *anceps*, Mx., *capillare*, L., *clandestinum*, L., *crus-galli*, L., *dichotomum*, L., *depauperatum*, Muhl., *discolor*, Muhl., *geniculatum*, Muhl., *hispidum*, Muhl., *involutum*, T., *latifolium*, L., *macrocarpon*, Torrey, *nervosum*, Muhl., *nitidum*, Lmk., *virgatum*, L., are found in this State. The species are found in pastures and cultivated fields. They are of little consequence for cattle. The culms are stiff and hard, often hairy, and cattle do not appear to relish them after they have come to any size. The Cock's-foot Grass, introduced from Europe, and common in gardens, and about yards, seems to follow man in his dispersions over this country. Two new species were found at Deerfield by Dr. Cooley, and named by Dr. Torrey. *P. miliaceum*, L., Millet, is sometimes found in gardens.

SETARIA. P. de Beauv. Bottle Grass.

Named from the Latin for *bristle*, as the involucre is composed of bristles; taken from Panicum.

Four species of this grass, *viridis*, *glauca*, *Italica*, *verticillata*,

P. de B., are pretty common. One of them, often called Fox-tail Grass, from its long and large bristly spike, is common about gardens and fields, and seems to follow man. *S. viridis*, is found in the vicinity of Boston.

DIGITARIA. Walter. 3. 2. Crab Grass. Finger Grass.

Named from its *finger-like* form of spikes. The 2 species were ranked with the Panic Grasses. They grow in dry and sandy soils. The common one, *D. sanguinalis*, Scop., has a reddish or purplish culm, rather prostrate, spreads rapidly over the fields. The seeds are employed for food in Poland. The other is called *filiformis*, Ell., from its *thread-like* culm and spikes.

ELEUSINE. Gaertner. 3. 2. Wire Grass.

From Eleusis, a name of Ceres, the goddess of grasses. *Loudon.* Glumes 5–7-flowered, obtuse, equal; scales truncate.

E. Indica. Lmk. Spread widely over Europe, Asia, Africa, and America; common in cultivated grounds; not much used by animals. Culm 1–2 feet high, compressed, declined; spikes straight, erect, in pairs or fours; July.

POA. L. 3. 2. Meadow Grass.

From the Greek for *herb;* one of the most important grasses for the support of cattle. More than 30 species are native or cultivated in England, and 24 are credited to the Northern States, and 18 species to this State.

Spikelets oblong, linear, compressed, many-flowered, from 3–20; glumes shorter than the florets; inner chaff or paleæ sometimes woolly at the base; scales smooth; panicled, branched.

P. pratensis. L. Common Spear Grass. This well-known and abundant meadow grass forms a great proportion of the turf or greensward of pastures and meadows; found in all situations, except as an aquatic. To this should be added *P. trivialis*, L., and *P. annua*, L., as another part of turf grasses. The latter is small, low, forming a dense mat by walls, in yards, along the streets and fields, springing up early in the spring, and flowering

early and long. It makes beautiful patches everywhere, and is deservedly receiving more attention.

P. compressa, L. Is the Blue Grass, or Blue Spear Grass, named from its *compressed* and much-flattened stem, and *bluish-green* color ; much less common, does not form turf, though it grows in clusters, and might, perhaps, when cultivated, be valuable, but seems to delight in the borders of woods and moist situations along banks. Seems to be loved by cattle.

P. nervata. W. Meadow Spear Grass. The *Foul Meadow* of many farmers, 3 or 4 feet high, erect, with a recurved panicle in its older state, waving beautifully in the wind, and having a fine appearance. It is a much coarser grass than the preceding, and is not so well relished by cattle, though it is readily eaten as hay in winter. Some other coarse grasses go to make up all that is called *Foul Meadow*.

P. eragrostis. L. Branching Spear Grass. A large and beautiful grass, with a diffuse panicle of flowers and fruit ; color bright-green ; not common ; sandy soil.

P. Canadensis. Torrey. Another large and beautiful grass, about orchards and fields ; not abundant.

P. nemoralis. L. Inhabits wet open woods ; a large, tall, rank grass, with a long, finely arched panicle of fruit ; too coarse for food, except when young ; Berkshire County ; June.

P. maritima. Huds. A beautiful grass about salt marshes. *Big.* A foot high ; branches in pairs.

P. capillaris. L. A beautiful, slender grass in its panicle, which is large, loose, and spreading.

P. dentata. Torrey. Has a loose panicle ; wand-like branches ; spikelets 5-flowered ; lower palea 5-nerved and 5-toothed at the apex ; swamps ; June.

P. palustris. Muhl. Has a diffuse panicle ; florets a little webbed at the tip ; 2–3 feet high, erect ; in wet meadows ; June.

The other species, *aquatica*, T., *elongata*, T., *hirsuta*, Mx., *obtusa*, Muhl., *pectinacea*, Mx., *reptans*, Mx., like several of the preceding, have little utility.

Tricuspis. P. de Beauv.

Spikelets roundish, swollen, many-flowered, 5–7 ; lower palea bifid-toothed ; seed 2-horned.

T. seslerioides. Torrey. Formerly considered a Poa, a large and splendid grass, often 5 feet high, with a large spreading panicle, purplish, in wet meadows ; falsely called Red-top, and far inferior for utility in New England. It is said to yield two crops a season in the mountain meadows of Pennsylvania, and to be an excellent grass. It must be cut early to be eatable by cattle, and then may become a valuable grass. Leaves are large, and long, and smooth. This is the Poa *quinquefida* of Pursh, and seems to be very close to that genus.

Paspalum. L. 3. 2. Paspalon Grass.

The two species, *ciliatifolium*, Mx., and *setaceum*, Mx., do not appear extensively diffused ; it is the Greek name for *millet. Loudon.*

Muhlenbergia. Schreb. 3. 2.

Named in honor of Muhlenberg, to whom the Botany of this country is greatly indebted, a pupil of Linnæus, and distinguished as a scientific man, an ardent lover of nature, with a character every way estimable.

Two species, *diffusa*, Schreb., and *erecta*, Schreb., are found in this State ; small slender grasses, of little value, early losing their seed, and called *Drop-seed Grass* ; not abundant, good food for cattle.

As the name of the great Linnæus was given to a small and neglected plant, so that of Muhlenberg is honored by one of the poor grasses.

SPARTINA. Schreb. 3. 1. Rough Grass.

Three species, *cynosuroides*, W., *glabra*, Muhl., and *juncea*, W., are in this State; coarse and rough grasses, somewhat sedge-like, about marshes; all in the vicinity of Boston. Two of the species are large, 3 – 5 feet high.

ZIZANIA. L. 19. 1.

Derived from a Greek name of another and very different plant. This is a native of America, and found about all the northern Lakes.

Glume none; seed 1, enveloped in the plaited paleæ.

Z. aquatica. Lamb. Water Oats. Wild Rice. Culm 4 – 6 feet high, jointed, large, with a wide-spreading panicle of flowers tapering to the apex, and large leaves; seeds half an inch long, smooth and blackish, abundant, and resembling rice in their properties, as they form fine flour. It is suggested by Dr. Bigelow, that it might be profitably cultivated to render "large tracts of inundated ground and stagnant water" useful, as horses are fond of it, and as it yields an abundant crop. The seeds are collected and eaten by the Indians around the great Lakes; and, though they are the most valuable part of the plant, they fall off early and easily, so as to render it difficult to collect them. Pinkerton says, "this plant seems intended by nature to become the bread-corn of the north." *Loudon.* The plant has been introduced into England, and grows, as in this country, around ponds.

In the eastern part of this State, it grows on the sides of ponds and slow streams. *Big.* It must of course form valuable food for the wild geese, and many other animals at the North.

MILIUM. L. 3. 2.

M. pungens. Torrey. This is the Dwarf Millet Grass, to be added to those in the "Geology."

Erect, slender, 12 – 18 inches high, simple, stiff; radical leaves 6 – 8 inches long, a line wide, acute; panicle few-flowered. The

glumes are 2, beardless ; inner chaff oblong, shorter than the glume, awnless.

Grows about Deerfield on dry hills, and in the vicinity of Boston ; May.

Leersia. Sw. 3. 2. Cut Grass.

Named after the botanist Leers. *L. oryzoides*, Sw., and *L. Virginica*, W., are both indigenous to this country, and one of the two is found also in the Levant. The two species are found in ditches and about wet places by sluggish waters ; grow 2 or more feet high, with a light-green stem, and yellowish-white flowers, which have only one floral envelope ; leaves rough backwards, especially on one of the species, so as to convince one of the appropriate name, *cut-grass* ; common, but not abundant.

Oryzopsis. Mx. 3. 2. Mountain Rice.

Named from the resemblance of the seeds to rice, the name of which is Oryza.

O. asperifolia. Mx. Found in woods in light soil, 1 – 2 feet high, with long, deep-green leaves at the root, erect and stiff, and green through the winter ; panicle simple, flexuous ; seed white, about as large as rice, and farinaceous ; April and May.

Whether it will be profitable for cultivation, as Pursh proposed, on account of its fine white flour, can be ascertained only by trial.

Piptatherum. Beauv. 3. 2.

This was taken from the last, which it resembles considerably.

P. nigrum. Torrey. Blackseeded Millet Grass. Flowers in a simple panicle, rather racemed ; inner chaff black and hairy, with a long awn ; 2 – 3 feet high ; leaves long, linear-lanceolate ; few-flowered ; seed black, a little larger than the rice.

Lolium. L. 3. 2.

From the Celtic name of the plant. *Loudon.* Glume 1-valved to the lower fruit, and 2-valved to the upper ; lower palea with a bristle or awn at the end ; scales with 2 unequal teeth.

L. perenne. L. Darnel Grass. Culm 18 inches high, smooth, with broad-linear leaves ; spike 6 inches long, with spikelets 7 – 9-flowered ; meadows and roads ; cultivated for hay in England.

L. temulentum. L. Is attributed to New England by Dr. Torrey ; a troublesome weed, having poisonous seed ; introduced.

L. Italicum. Ray Grass. Recently introduced and recommended.

Triticum. L. 3. 2.

Derived from the Latin for *wear*, because *worn* or ground into an eatable substance. As embracing wheat, this genus contains one of the most important vegetables.

T. repens. L. Quake, or Quack, or Couch Grass. Sometimes, from its resemblance to wheat, it is called Wheat Grass. This is a troublesome grass of gardens and fields, difficult to eradicate, as it sends out many and long roots, creeping under ground, exceedingly tenacious of life. It grows 2 or more feet high, with an erect culm, stiff, leafy, terminating in crowded spikelets. It is probably from Europe.

T. æstivum. L. Summer Wheat.

T. hybernum. L. Winter Wheat.

T. turgidum, L., and *T. Polonicum*, L., and *T. compositum*, L., Egyptian Wheat.

These are perhaps varieties of one or two species. Besides these, there are many varieties of wheat, as white, red, bearded, beardless, woolly, &c., seeming to run into each other. Even the Egyptian wheat, with its branched spikes, has changed to the single spike in England. *Loudon.* The last three species, just mentioned, are said to be from Egypt ; also *T. spelta*, W., and *T. monococcum*, L., which deserve attention.

As wheat is so important an article of food, and extends over

so many degrees of latitude, it is important to know the varieties best suited to the climate, and the soil most adapted to the plant. The former must be ascertained by trial; the latter is pretty well known already. The wheat-growing countries are not among the primary formation of Geology, but in the transition and secondary. In the first, siliceous or argillaceous soils prevail; in the second and third, calcareous and argillaceous, and the latter is of a much richer character than the former. To make wheat a good crop in primitive countries, there must be good and continued manuring; and a very great improvement would be the addition of lime to the soil in some form, either as marl or lime itself, so that the carbonate of lime shall be in the earth. This seems to be shown by the advantages which result from lime as a manure, and from the fact, that the soil of secondary countries, so productive of wheat in the temperate latitudes, contains much carbonate of lime. For illustration, turn to the valley of the Genesee, where the earth effervesces powerfully with acids, and where lime, and sulphate of lime, and muriate of lime are found commonly in the waters. A great improvement will doubtless be found in the increase of lime in our soils. There must, indeed, be silex, for this earth seems to be necessary for the hardness of the cuticle, of which glass may be formed by melting the ashes.

Wheat is said to yield more flour, and its flour to contain more nutritious matter, than any other grain. It yields also a large proportion of starch, considered of the best kind.

The straw of wheat is wrought into hats, &c. The Dunstable hats are made from the wheat raised on the chalky soil near that place in England. The Leghorn hats are formed of a short and small wheat raised for that purpose on the Arno, between Leghorn and Florence, and the straws are not split for this object. *Loudon.* In this State, some beautiful bonnets have been formed from some species of Poa and Agrostis.

Secale. L. 3. 2. Rye.

Supposed to be from the Latin *to cut*, and that from the Celtic for *sickle* (*Loudon*). It sometimes grows in our neglected fields; it cannot be called naturalized; native country, the North of Asia and Europe.

S. Cereale. L. Has its specific name from Ceres, the fabled goddess of agriculture. Next to wheat, it is the most important grain for this latitude, as it yields the next best flour in any considerable quantity ; it likes a colder climate, and is still more important at the North. It delights in a soil more siliceous, and is better adapted than wheat to much of the soil of this Commonwealth. It contains more gluten and less fecula or starch than wheat. Gluten, as paste, is an article of importance in some arts. Rye is not much cultivated in England, as the soil is better adapted to wheat ; in New England it is a grain of great value. The two varieties, *summer* and *winter* rye, are supposed to belong to one species.

The heads of rye sometimes become diseased, and *ergot*, large, long, black grains are produced instead of the seed. Some have considered ergot a mere disease ; others have called it a fungus. De Candolle named it Sclerotium *clavus* (Acinulac, Fries). At any rate, it is a poisonous substance, and exerts a pernicious influence on breeding animals, and especially upon sheep. The ewes should not be suffered to eat this refuse part of rye for some time before bearing their young, if, indeed, at all, as many lambs are thus lost.

Sorghum. L. 19. 1.

S. saccharatum. L. Broom Corn. The value of this article, and the extent of its cultivation, are well known ; said to have come from India ; too rough, and large, and hard, for food of cattle. For the manufacture of brooms it is a grass of the first necessity, and in some parts of the State an article of very profitable cultivation.

S. vulgare. L. Coffee Corn. Grand Millet. Sometimes cultivated in gardens as a curiosity, or for feeding hens, &c. ; not considered of great value, probably because we have other grasses of more value for the same object. In Arabia and Asia Minor, it is much cultivated, and considered an important article for the food of man ; also in China and in the West Indies. It yields fine white flower ; in Arabia is called *Durra* or *Dora*. The generic name is said to be derived from the Indian name of the plant. Its tops are used also for brooms. *Loudon.*

ZEA. L. 19. 3. Indian Corn.

The Greek name of some kind of corn, from the Greek word *to live*, on account of its nutriment.

Z. mays. L. Maize. Cultivated, but indigenous to America. It is more abundant at the South, larger, and more productive, and its flour is whiter and more excellent. The necessity of hot weather to ripen this grain in this latitude, is well known, and verified by the heat of the last summer (1839), when the corn was, to a considerable extent, ripened at an early day in September, even in Berkshire County. It is probable that seed which would ripen earlier, or had become better adapted to the climate, was planted, and the favorable season early matured it.

There are many varieties of Indian Corn, of which Maize is the South American name ; all of which may be reduced to one species. Some are far more hardy than the others. One of this kind is mentioned by Nuttall as cultivated by the western and northern Indians, and called "Early Mandan Corn." Some grow and ripen in England. The value of this grass is immense. Its stalks and leaves are excellent fodder for cattle.

Indian corn was introduced into England in 1562. The species *Z. Curagua*, W., Cross Corn, from Valparaiso, and which parches into a cross-like form, is probably cultivated in some parts of the State.

As our corn is liable to be affected and sometimes cut off by a too early frost, it is important to obtain seed from a more northern section, which will be far more likely to ripen here. Though it may bear a smaller ear, the advantage is obvious. But, when the crop is injured by the frost, it was clearly ascertained a few years since, that more corn was ripened by cutting it up from the roots and placing it upright in small collections, than by leaving it to stand. In the latter case, the juice of the plant seems to be drawn to the root, in the former, to be carried into the kernels on the ear, and to bring more of them to maturity.

The *smut* of Maize is Uredo *zeæ*, Schw., a fungus of dangerous properties. Only a little is produced in our country, and it is avoided by animals. It is said to have a deleterious effect on those that eat it.

ORDER 262. CYPERACEÆ. The Sedge Tribe.

This is an extensive assemblage of plants, out of the tropics especially, which flourish greatly in the temperate regions. A considerable number is found in this State, being those which are common to the Northern States.

Glume or bract commonly solitary, imbricated with perfect flowers, sometimes monœcious, rarely dicecious ; stamens vary from 1 – 12 ; ovary 1-seeded, often with bristles rising from its base ; style single, 2 or 3-divided ; stems with joints, also many without joints.

The Cyperaceæ have the general appearance of the grasses, and are usually confounded with them. In the young state, some of them are food for cattle, though they contain much less nutritious matter than the proper grasses. They are found in every variety of situation.

Of the 247 species, credited to North America by Dr. Torrey, 125 are credited to this State in the " Geology " ; though some, perhaps, of the latter, are considered not distinct species in the former enumeration.

Besides the elucidation of the grasses by Dr. Muhlenberg, there has been an elaborate Monograph of the Rhynchospora by Dr. Gray, in the " Annals of the Lyceum of Natural History of New York," and also of the Cyperaceæ by Dr. Torrey, in the same work. The value of these works can be appreciated only by the systematic botanist. Several genera have been more or less changed ; but in this Report the older divisions will be retained. Some new species have been found.

Dulichium. Richard. 3. 1.

Spikes somewhat branched, axillary ; spikelets linear-lanceolate ; glumes 2-rowed, sheathing, with a long style ; nut with bristles at the base.

D. spathaceum. Pers. Galingale. Leaves spreading in three directions, on a roundish culm, and somewhat tapering, and with spreading spikelets from sheaths which are spathe-like, and end in

short leaves ; a common, large, leafy, tough grass, abounding about pools and sluggish waters ; August ; scarcely eaten by cattle.

Cyperus. L. 3. 1.

A genus of plants of little beauty or apparent utility, though the species are pretty numerous. Eleven species are found in this State.

Spikelets compressed, distinct, 2-rowed ; style falling off early ; nut 1, without bristles.

C. flavescens. L. Yellow Sedge Grass. Culm 4 – 10 inches high, with upper leaves tall as the culm ; flowers umbel-like with short and unequal rays ; grows about marshes in this country and Europe ; plant yellowish.

C. strigosus. L. Grows in low grounds, often more than a foot high, and with an umbel nearly simple ; spikelets of many flowers ; August and September.

C. mariscoides, Ell., in Bigelow's Flora. Considered to be *C. filiculmis*, Vahl., by Dr. Torrey ; and *C. castaneus*, Big., to be a variety of *C. flavescens.*

C. pœformis. Ph. Abounds in cold, wet, sandy places, on the declivities of elevations, and beside roads, with a stem 3 – 6 inches high, with reddish-brown, flat spikelets ; forms a dense, close-matted covering of the earth, preventing the washing of the sand.

C. Grayii, Tor., in Mon. Cyp., sp. 21. Was found by Mr. Oakes in Nantucket and Martha's Vineyard. *Torrey.*

C. diandrus, T., *C. Nuttalii*, T., *C. dentatus*, T., *C. inflexus*, Muhl., are also found.

The species of Cyperus are far more numerous at the South, and are generally not employed in agriculture or the arts. The roots are rather succulent, and contain a pleasant mucilage. *Lind.*

ERIOPHORUM. L. 3. 1. Cotton Grass.

The name is derived from the Greek for *bearing wool*, as the spikes of flowers and fruit produce many long, woolly hairs, which make the plants conspicuous at some distance. They grow in wet or marshy situations, and some of them in the deepest and coldest marshes, like those in Stockbridge, Becket, Peru, Wenham, &c. In such marshes are *E. alpinum*, L., the *E. Hudsonianum*, Mx., and *E. vaginatum*, L. Besides these, are the more common species, *E. cespitosum*, Ph., *E. Virginicum*, L., *E. polystachyum*, L., and *E. angustifolium*, Richard, which have 40–60 long white hairs in each flower. None of these plants, which are widely spread over the country, are very abundant, or applied to any important purpose. A few more species are found in Arctic America.

RHYNCHOSPORA. Vahl. 3. 1.

From the Greek for *beak* and *seed*, as the seeds are beaked. *Loudon.* Four species occur in this State. They are nearly related to the preceding, and grow about wet places, rising a foot or more high, rather rare plants, of little consequence. The species are *R. alba*, Vahl., *R. glomerata*, Vahl., *R. macrostachya*, Torrey, now made the genus Ceratoschœnus by him; and *R. fusca*, Roem. and Schult., according to Mon. Cyp., Torrey. The species are far more numerous and abundant in the Middle and Southern States.

SCHŒNUS. L. 3. 1.

From the Greek for *cord*, as the plants were twisted into cordage. *Loudon.*

S. mariscoides. Muhl. Bog Rush. Another of the kindred plants, credited to this State by Dr. Bigelow; found in "Fresh Pond," and also in "Belchertown and Leverett."

Culm 2 feet high, smooth, or rough with dots, furrowed, leafy; umbel terminal; leaves channeled; seed naked, rounded; July; in bogs.

FUIRENA. Rottb. 3. 1.

Glumes awned, imbricated into a spike ; petaloid, or perianth 3-valved, cordate, awned.

F. squarrosa, Mx., var. *pumila*, Torrey, "Mon. Cyp." p. 291. Culm 3 – 6 inches high ; spikes or heads of flowers thick, with long involucre leaves ; pond in Tewksbury, B. D. Greene, Esq. A newly discovered plant, not announced till the publication of the "Mon. Cyp." by Dr. Torrey.

PSILOCARYA. Torrey. 3. 1.

A new genus, and well named.

P. suipoides, Torrey, "Mon. Cyp." p. 359. Culm smooth and leafy ; leaves 6 – 8 inches long, and grassy ; flowers in cymes ; heads of flowers rather acute.

A new plant, collected by Dr. Little of Boston, the locality not precisely known in Massachusetts. It was found also by T. A. Greene, Esq., at New Bedford.

SCIRPUS. L. 3. 1. Club-rush.

From the Celtic for *rush*. More than 40 species of this genus are found in the United States, and more than half are credited to New England. In this State are 21 species, according to the Geology. A few species are united in the "Mon. Cyp." of Torrey.

The plants are rush-like, rather abundant in water or wet situations, commonly without leaves, and with sheathes at the base, varying greatly in size and appearance, not often used for fodder for cattle in this country. In Scotland, *S. cespitosus* is the food for cattle from March to May. *Loudon.*

Glumes imbricated into a close spike ; seed or nut naked, or with bristles at the base.

S. acicularis, L., embraces also *S. trichodes*, Muhl., and *S. capillaceus*, Mx., which he credited to New England, and is a

small and slender plant on the borders of ponds, in dense cespitose patches and tufts ; a delicate plant.

S. capillaris, L. and Muhl. Found near Boston ; a small, densely cespitose plant, in sandy fields ; occurs also in other parts of the State.

S. subsquarrosus. Muhl. Grows in tufts about 2 inches high, capillary, with fine bristly leaves, on sandy banks of rivers ; Deerfield.

S. intermedius. Muhl. About 2 inches high, cespitose and diffuse, strong ; projects from running water.

S. planifolius. Muhl. Rises 4 or 5 inches high, and has wide grassy leaves, rough on their edges, and long as the plant ; is spread over the State on cold and hard soils, and in open woods or fields ; very different in appearance from the rest of the genus, as all remark who notice the plant ; common, but not very abundant.

S. capitatus. Muhl. Grows in muddy bottoms of pools and sluggish streams, in clusters, sometimes forming small clumps. It is *S. obtusus*, Willd., and distinguished by its obtuse, subglobose heads of flowers. It is not *S. capitatus*, L., which grows in the Southern States. *Torrey.*

S. tenuis, Willd., and *S. quadrangulatus*, Muhl. Catalogue. A slender rush-grass, growing in wet places, and shallow waters, leafless, with a slender head of flowers ; 4 – 8 inches high ; begins to flower early in spring ; Boston, Salem, Amherst, Berkshire County, and probably throughout the State.

S. autumnalis. Muhl. Found in situations like the last ; Amherst, Boston ; July to October. Culm 8 – 12 inches high, cespitose. This is *Fimbristylis*, Vahl., from the form of the style.

S. tuberculosus. Mx. A stiff plant without leaves, of a light-green color; Salem and Tewksbury, in sandy swamps near the ocean.

S. triqueter, L. and Mx. Has an acutely 3-sided culm, concave on two sides, slender, 2 – 4 feet high; a short leaf or two at the base; grows out of water, in ponds and marshes, fresh and salt; widely diffused; pond on Taconic Mount, Berkshire County, Amherst, Boston. *S. Americanus.* Pers.

S. maritimus. L. Grows near the sea, or in brackish marshes, 1 – 3 feet high, with long and broad leaves, acute and rough on the edge.

The last two are peculiar in their sharp 3-sided culm. The last is eaten by cattle, and the dried roots have been used for bread. *Loudon.*

S. subterminalis. Torrey. From 1 to 3 feet high, its flowers projecting near its top from the water, small and slender, with long leaves, channeled at their base; widely spread over the State, but first found by Dr. Cooley of Deerfield, and sent to Dr. Torrey.

S. atrovirens, Muhl., and *S. brunneus*, Muhl., are two large, stiff plants, with long leaves, growing in swamps and wet fields, and bearing a large cluster of flower-heads, much alike, and yet to be distinguished.

S. eriophorum. Mx. Red Cotton-Grass. Named Trichophorum *cyperinum*, by Persoon, on account of the hairs in its flowers, and its resemblance to Cyperus; a stiff, erect, rank grass, 2 – 5 feet high, smooth and roundish, or obtusely triangular, with long, narrow leaves, and bearing a large mass of flowers, umbel-like, nodding, and underpropped by several long and stiff leaves; common in swamps and pools, and in rich muddy bottoms and banks; cattle do not eat it.

S. lineatus. Mx. A smaller plant than the preceding, with

flowers terminal and lateral; stem far more triangular, with long leaves, rough on the margin; in bogs. Plainfield; found by Dr. Porter.

S. debilis. Pursh and Muhl. Grows along streams and in ponds, 1 – 2 feet high, in tufts, without leaves, and its flowers projecting some distance from the upper extremity; Amherst, Boston, and Berkshire County.

S. lacustris, L. and Muhl., and *S. acutus*, Muhl., are large plants, and, if different, much alike; 3 – 6 feet high, round, tapering, rising out of ponds and lakes, often where the water is several feet deep; largest of the rushes; the former called in England *bulrush;* used for making mats, for bottoms of chairs, for a covering to floors, and for thatching; stem full of pith, and bearing flowers near its upper extremity.

S. palustris. L. and Muhl. Grows in swamps and wet places, variable stem, often 2 feet high, large or small; common also in Europe.

S. olivaceus. A new species, named by Dr. Torrey, Eleocharis *olivacea*, Tor. "Mon. Cyp." p. 300, and "nearly allied" to the preceding; found in wet places of sandy soil, and usually partly in the water, about a span high, often less, in dense tufts; pond in Tewksbury. *B. D. Greene.*

SCLERIA. Gaertner. 19. 3.

Monœcious; glumes 2 – 6, and in the barren flower the paleæ are unarmed, and in the fertile are none; stigmas 1 – 3; nut colored. From the Greek for *rough.*

S. triglomerata. Mx. Whip Grass. Three to four feet high, 3-sided and rough, with almost winged angles, and leaves about one third of an inch wide; flowers on the side and at the termination; in swamps and low grounds; Hadley.

Carex. L. 19. 3. Sedge Grass.

From the Latin *to want*, because the upper flowers or spikes are so often *destitute of seeds*. The flowers are divided into *barren* and *fertile*, usually on the same plant, often on the same spikelet, and often on separate spikes.

This is a very extensive genus, a host by itself. One hundred and sixty-four species, besides many varieties, and the union of several heretofore considered distinct, are credited to North America in the "Mon. Cyp." by Dr. Torrey. Eighty-six species are enumerated in the "Geology," as found in this State, a number probably not too large. It is everywhere a coarse grass, and some are very coarse and rough. In the young state, most of the species are eaten by cattle, and many are made into coarse hay mingled with the proper grasses, while none are cultivated for that purpose. The species are found in all situations; some delight in cold and Alpine districts, and some in the warm soil of valleys; some never leave the woods, some seem to dwell in rich cultivated fields, and some flourish as the borderers between these two; some, as *C. arenaria*, grow only on sand, and become of great use in fixing the movable sands; some never forsake marshes and fens, ponds and pools. The flowers are without beauty, in rather close masses and spikes, with the fertile flowers in various positions, often at considerable distance, at least from the sterile ones. The seed is entirely enveloped in a loose, strong covering, chaff-like, but without divisions, and which falls off with it. The plants vary in size, from an inch or two in height, to 1 – 3 feet, and sometimes 8 feet high; but the seed or nut does not vary in proportion, and is always small; in some species it is flattish, or lens-like, and in others triangular or 3-sided.

Glumes single, 1-flowered, arranged in a close spike, or ament, usually monœcious, with a persistent and 1-valved perianth inclosing the coriaceous nut or seed.

Botanists differ somewhat in the number of the species of this genus.

Some of the species have 2 stigmas, or a biparted stigma, and others 3, or a 3-parted one; and this fact forms a very natural

division. The stamens are variously situated in each of these 2 divisions ; and this leads to some natural subdivisions.

I. Stigmas 2 ; seed or nut compressed, ovate, and lenticular. Torrey in "Mon. Cyp." p. 387.

Group 1. Spike 1, often diœcious.

1. *C. exilis*, Dewey. Often has stamens at the base of the spike ; a new species, found by William Oakes, Esq., in a marsh at Danvers, and by Mr. M. A. Curtis, afterwards, at Malden. It has since been found in several places in the State of New York.

No other species of this group is found in this Commonwealth, though some others abound farther north.

Group 2. Spikes several, often diœcious.

2. *C. sterilis*, Willd. In wet, marshy places.

3. *C. bromoides*, Schk. Small bogs in marshes.

4. *C. siccata*, D. Sandy plains near Westfield.

Group 3. Spikes several, stamens at the summit.

5. *C. cephalophora*, Muhl. Fields and open woods.

6. *C. muricata*, L. A European species, lately discovered by B. D. Greene, Esq., near Boston.

7. *C. cephaloidea*, D. Fields and hedges ; differs from *C. muricata*, of which it has been called a variety, and very distinct from *C. cephalophora*, of which it is made a variety in "Mon. Cyp." p. 389.

Spikelets 5 – 7, aggregated into a thick spike, the lower 2 often a little remote ; fruit ovate, short-rostrate, scabrous on the upper half, 2-toothed, plano-convex ; scale of the fruit ovate acutish, short, scarcely half as long as the fruit ; stigmas 2 ; spikelets with stamens at the upper part ; culm acutely 3-sided, leafy towards the base, of a yellowish color, and from 1 to 4 feet high, usually about 2 feet ; June ; hedges, open woods, or fields.

Stem is sometimes decumbent from its weight ; grows highest in hedges ; fruit falls off early. This plant was placed under *C. muricata*, because it was nearer that, and from a desire not to multiply species. There is little doubt that it was blended with his *C. cephalophora* by Muhlenberg ; but it cannot belong to that plant. It is much nearer *C. sparganioides* in spikelets and

fruit, but differs far too much. It seems proper to give it due rank among its kindred species.

8. *C. rosea*, Schk. Moist fields.

var. *radiata*, D. Moist woods or shaded places.

9. *C. retroflexa*, Muhl. Open, moist woods. In making these two distinct, the authority is Schk. and Muhlenberg.

10. *C. Muhlenbergii*, Schk. In dry fields and pastures.

11. *C. sparganioides*, Muhl. Cultivated fields.

12. *C. multiflora*, Muhl. Meadows and moist pastures.

var. *microsperma*, D. Do. do.

This is *C. vulpinoidea*, Mx.

13. *C. stipata*, Muhl. Wet places; variable. Much resembles *C. vulpina*, L., though much smaller than the European plant.

14. *C. cetacea*, D. Wet meadows; between the last two, and distinct from both.

15. *C. paniculata*, L. In pond holes; little branching.

16. *C. teretiuscula*, L. Do.

17. *C. disperma*, D. Wet places at the foot of hills.

Group 4. Spikes several, stamens at the base.

18. *C. Deweyana*, Schw. Open woods. Found throughout the Northern States, into Canada and the Frigid Zone.

19. *C. trisperma*, D. Small tufts in wet, shaded places.

20. *C. tellulata*, Schreb. Wet fields.

21. *C. scirpoides*, Schk. Wet and marshy places.

22. *C. curta*, Good. Wet bogs.

23. *C. scoparia*, Schk. Dry and moist situations.

24. *C. lagopodioides*, Schk. About wet places.

25. *C. straminea*, Willd. Fields and pastures.

var. *minor*, D. Do. do.

26. *C. tenera*, D. Wet fields. Related to the preceding, but often is quite different.

27. *C. cristata*, Schw. Moist fields.

28. *C. mirabilis*, D. Hedges and fields, dry.

29. *C. festucacea*, Schk. Cultivated grounds. Larger, and club-shaped spikes, and different fruit and seeds from the two preceding, which it resembles.

Group 5. Stamens and pistils on distinct spikes.

1. Staminate spike single.

30. *C. aurea*, Nutt. On wet grounds ; small and fine.

— *pyriformis*, Schw. In this State is no other species of this sub-group.

2. Staminate spikes 2 or more.

31. *C. acuta*, L. Bog Sedge. Grows in dense bogs ; culm rises 2 – 3 feet, arching as the seed ripens, very rough, 3-sided, and with rough leaves, very rough on the edges, and long leaves from towards the base. It forms some early food for cattle in the spring. What are called *bogs*, which it forms, are large, grow up a foot to 2 feet from the surface, very durable, and destroyed only by cutting them off and heaping them together till the fermentation shall destroy them.

var. *erecta*, D., and *sparsiflora*, D., are scattered plants, in wet places, but not forming bogs.

32. *C. cæspitosa*, L. In dense cespitose masses.

33. *C. aquatilis*, Walk. Borders of ponds.

34. *C. stricta*, Gooden. About marshes ; very glaucous in the young state.

35. *C. crinita*, Lam. In moist grounds.

36. *C. paleacea*, Wahl. In dry meadows.

II. Stigma 3-parted ; seed or nut 3-sided. "Cyp. Mon." Torrey, p. 402.

A. Spikes androgynous.

1. Stamens at the summit.

Group 6. Single spike on the culm.

37. *C. polytrichoides*, Muhl. Wet places ; cespitose.

38. *C. leucozlochin*, Ehrh. Marsh in Ashfield.

— *pauciflora*, Light. and Schk.

Group 7. One or more radical peduncles with a single spike, sometimes 2 or more.

39. *C. pedunculata*, Muhl. Open woods ; early in spring.

2. Stamens at the base of the spike.

Group 8. Spike 1, sometimes more.

40. *C. squarrosa*, L. Moist fields ; Hadley.

B. Terminal spike androgynous, pistillate at the summit ; the others pistillate.

Group 9. Pistillate spikes 2 or more.

41. *C. virescens*, Muhl. Borders of meadows.
var. *costata*, Schw. and Tor. Do.

42. *C. hirsuta*, Willd., *C. triceps*, Mx. Moist meadows.
var. *pedunculata*, Tor. Do.

43. *C. Buxbaumii*, Wahl. Do.

44. *C. formosa*, D. Do.

45. *C. gracillima*, Schw. Do. and dry.
— *digitalis*, Schw. and Tor. "Mon. Cyp."

46. *C. Torreyana*, D., is changed to *C. Davisii*, Tor. Do.

C. Staminate spike single and distinct from the pistillate.

Group 10. Pistillate spikes sessile, or with inclosed peduncles.

47. *C. pubescens*, Muhl. Meadows and fields.

48. *C. vestita*, Willd. Dry fields in Hampshire County.

49. *C. præcox*, Jacq. Salem ; Dr. Pickering.

50. *C. flava*, L. Moist meadows.

51. *C. tentaculata*, Muhl. A variety was called *C. rostrata*, Schk., not of Mx. Wet.

52. *C. lupulina*, Muhl. Hop Sedge. A large, strong plant, with a culm from 1 to 2 feet high, and with long leaves, especially those that come out under the flower. The barren spike terminates the culm ; the fruit-bearing spikes are long and large, and resemble the *hop* in form ; grows in wet places, and around pools of water ; common ; June.

53. *C. folliculata*, Schk., is *C. intumescens*, Rudge. Wet.

54. *C. varia*, Muhl., *C. Pennsylvanica*, Lam. Fields.
var. *pedicellata*, D. In tufts.

55. *C. marginata*, Muhl. Open woods.

56. *C. Davisii*, D., changed to *C. Emmonsii*, D. Dry hills.

57. *C. Novæ-Angliæ*, Schw. Saddle Mount and Ashfield.
— *collecta*, D., is a taller variety ; meadows on hills.

Group 11. Spikes exsertly pedunculate.

58. *C. plantaginea*, Lam. Plantain-leafed Sedge. Grows in light soil, along hedges and in open woods. The leaves an inch wide and radical, are strongly ribbed, like plantain leaves, and live through the winter, spread out on the ground. From the root spring several leafless culms, brownish, with sheaths round the flower, stalks ending in a short bract-like leaf ; not abundant ; May.

59. *C. anceps*, Muhl. Fields and woods.
— *plantaginea*, Muhl. Do.

60. *C. blanda*, D. Moist meadows.
— *conoidea*, Muhl., *C. anceps*, Tor. "Mon. Cyp."

61. *C. conoidea*, Schk. Moist meadows.
— *tetanica*, Schw. and Tor.

62. *C. granularis*, Muhl. Meadows and pastures.

63. *C. tetanica*, Schk. Meadows ; Stockbridge.

64. *C. oligocarpa*, Schk. Moist, open woods.
— *digitalis*, Schw. and Tor.

65. *C. laxiflora*, Lam. Meadows.

66. *C. Hitchcockiana*, D. Saddle Mount ; borders of fields ; abounds in New York and Kentucky.

67. *C. binervis*, Sm. Near Boston ; B. D. Greene, Esq.

68. *C. Greenii*, D. In honor of B. D. Greene, Esq., who discovered it near Boston.

69. *C. flexuosa*, Schk. Wet places.

70. *C. sylvatica*, Huds. Moist open woods.

71. *C. scabrata*, Schw. Beside brooks.

72. *C. xanthophysa*, Wahl. Mountain swamps.
— *folliculata*, L. Dr. Gray.

73. *C. setifolia*, D., *C. alba*, L., var. *setifolia*, D. Woods.

74. *C. miliaris*, Mx., *C. Oakesiana*, D. Tewksbury Pond.

Group 12. Pistillate spikes pedunculate, and scarcely sheathed.

75. *C. miliacea*, Muhl. Moist meadows.

76. *C. hystericina*, Willd. Marshy places.

77. *C. pseudo-cyperus*, L. The culm ends in 1 barren spike,

small and slender ; 3 fertile spikes, long, cylindric, pendulous, and densely flowered, with long stiff leaves directly under the spikes, and long leaves rough on their edges towards the root ; color yellowish-green ; in dense tufts, beside ponds or slow streams.

78. *C. limosa*, L. Marshes in Stockbridge, Becket, &c.
var. *irrigua*, Wahl. Do.
rariflora, Wahl. Do. Becket.
livida, Wahl. Do. do.
oblonga, Wahl. Do. do.
79. *C. pallescens*, L. Meadows dry or moist.
80. *C. umbellata*, Schk. Dry fields.
var. *vicina*, D. Do.

D. Staminate spikes 2 or more.

Group 13. Pistillate spikes sessile or pedunculate, and sometimes staminate at their summit.

81. *C. trichocarpa*, Muhl. Beside slow streams.
var. *turbinata*, D. Ponds.
82. *C. filiformis*, Good. Marshes ; rush-like leaves.
83. *C. pellita*, Muhl. Do. leaves flat.
84. *C. lacustris*, Willd. Marshes and ponds.
85. *C. retrorsa*, Schw. Pondholes.
86. *C. Schweinitzii*, D. Wet places ; sandy.
87. *C. vesicaria*, L. Marshes.
88. *C. ampullacea*, Good. Marshes.
89. *C. bullata*, Schk. Beside marshes.
var. *cylindracea*, D. Do.
90. *C. longirostris*, Torrey. Light soil of banks and hedges ; discovered at Sheffield, Berkshire County, and since found in many other places, Westfield, Amherst, &c.
91. *C. polymorpha*, Muhl. Westfield ; dry fields. Most of the specimens have 2 or more staminate spikes, and the summit of the pistillate partially staminate.

The species of this genus seem to have few useful properties. The leaves of large species are used in Italy to bind wine-flasks, and by chair-makers and coopers, as the *rush* and *cat-tail*. ***Loudon.***

Their multitude of seeds doubtless yields food to many insects and smaller animals. In other respects, too, they, as well as other plants of little apparent value, must be exerting a favorable influence in the great economical purposes of the Creator.

In conclusion, it cannot be expected that all the plants, indigenous or cultivated, have been mentioned. Enough have passed under review to convince us of the vegetable riches of this Commonwealth, and to lead to gratitude for the munificent bounty of their great Author.

CHESTER DEWEY.

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REPORT

ON THE

QUADRUPEDS

OF

MASSACHUSETTS.

PUBLISHED AGREEABLY TO AN ORDER OF

THE LEGISLATURE,

BY THE COMMISSIONERS ON THE ZOOLOGICAL AND BOTANICAL SURVEY OF THE STATE.

CAMBRIDGE:

FOLSOM, WELLS, AND THURSTON,

PRINTERS TO THE UNIVERSITY.

1840.

A

REPORT

ON THE

QUADRUPEDS OF MASSACHUSETTS.

BY

EBENEZER EMMONS, M. D.

To George B. Emerson, Esq.,

Chairman of the Zoological Commission:

Sir,

In the execution of the trust committed to my hands, that of making known the Quadrupeds of the State, I have been governed by the principle, that general utility was the object to be aimed at. In view of the present state of our knowledge, I concluded, not without much hesitation, that this object would be best secured by a faithful and accurate description of the animals within our borders. This conclusion was forced upon my mind, when I found it necessary to study the characters of animals with a view to their recognition; for I saw, in the course of my investigations, that little had been done in the application of distinctive characters, and that, therefore, in this particular part of science, there was a field which required cultivation. Having adopted these views, it became necessary that I should investigate, examine, and describe for myself those animals in the branch of Natural History which had been assigned me. Of the execution of this task, all that I desire to say is, that it will be found accurate and true to nature. I may not have been sufficiently minute in the description of some of the most characteristic parts, as the teeth, for example. Still, I believe that the most essential characters are given. In drawing up generic and specific characters, I have studied brevity as far as I deemed it useful. My general descriptions and observations, I might have extended to a much greater length; but, in this particular, I have attempted to avoid extremes. Of the descriptions, characters, observations, and dimensions, I remark, generally, that they are my own, and that they are given from actual inspection, and with the objects before me at the time they were penned; a few instances only have occurred in which I have not had the specimen before me from which I could draw up a description. In those instances, I have, of course, relied upon the most approved authority. As it regards the additions to our Fauna, I may remark, that I have been able to add only two new species. Both of these belong to the genus Arvicola, under which they will be found described. From

this statement, it will be seen that I have not been very successful in the discovery of new species. There are, undoubtedly, several among the small quadrupeds yet to be added, but I have not been fortunate enough to make many such discoveries myself.

In preparing this Report, I have made use of the excellent work of Richardson on the northern animals of this continent, also of the work of Mr. Bell, whose ordinal names I have adopted; both of whom have also essentially aided me in drawing up generic and specific characters. Of American authors, Harlan and Godman have been of essential service. With the publications of Dr. Backman of Charleston I was unacquainted till most of the Report was written, and was only able to avail myself of his labors upon our Squirrels. In justice to the authors already mentioned, as well as others, it becomes me to remark, that I may have made a greater use of them than appears in this acknowledgment; and when this may seem to be the case, in the perusal of the Report, I trust that it will not be considered a design to commit depredations on the property of others who have labored, and more efficiently too, in the same field, but an oversight, arising, it may be, from neglecting to make the references at the proper time. Of unpublished works, Dr. J. E. De Kay's "Report on the Animals of New York" has been quite useful. More especially, however, am I indebted to him for personal observations on many of our Mammalia.

On comparing the old Catalogue with the one I have drawn up, it will be seen that there are several important alterations; all of which were unquestionably necessary. Many of these were made by Dr. De Kay, whose name is familiar not only in this country, but in Europe, and whose authority is acknowledged by the naturalists of the old and new world.

In this Catalogue, I have been averse to the admission of doubtful species, or those which I did not know, from personal observation, to have been found within the limits of the State, excepting those which are well known to have been extirpated. There are a few, however, which I have admitted, which I have not actually seen in Massachusetts; but, having seen them under circumstances which satisfied me that they were residents, if we may rely on the laws which govern the distribution of animals, I have admitted them as such. Living, as I do, in a corner of the State, at a distance from the sea coast, it is probable that there are several smaller quadrupeds, inhabiting the salt marshes and other secluded places, which are well known to other naturalists,

but of which I am entirely ignorant; these, however, cannot amount to more than three or four species. I consider, therefore, that the following Catalogue is very nearly an accurate list of the quadrupeds of Massachusetts.

CATALOGUE OF THE

QUADRUPEDS OF MASSACHUSETTS,

ARRANGED ACCORDING TO THEIR NATURAL FAMILIES.

ORDER CARNIVORA.

Family VESPERTILIONIDÆ.

Vespertilio pruinosus.
" Noveboracensis.
" Carolinensis.

Family SORICIDÆ.

Sorex brevicaudis.

Family TALPIDÆ.

Scalops Canadensis.
Condylura longicaudata.
" macroura.

Family URSIDÆ.

Ursus Americanus.
Procyon lotor.

Family CANIDÆ.

Canis lupus.
Vulpes fulvus.
" Virginianus.

Family FELIDÆ.

Lyncus borealis.
" rufus.
Felis concolor.

Family MUSTELIDÆ.

Mustela Canadensis.
" martes.
Putorius vison.
" vulgaris.
" Noveboracensis.
Lutra Canadensis.
Mephitis Americana.

ORDER RODENTIA.

Family CASTORIDÆ.

Castor fiber.
Fiber Zibethicus.

Family LEPORIDÆ.

Lepus Americanus.
" Virginianus.

Family MUSCIDÆ.

Arvicola hirsutus.
" albo-rufescens. n. sp.
" Emmonsii. n. sp.
Mus musculus.
" rattus.
" decumanus.
Arctomys monax.
Sciurus leucotis.
" vulpinus.
" niger.
" Hudsonius.
" striatus.
Pteromys volucella.
Gerbillus Canadensis.

Family HYSTRICIDÆ.

Hystrix dorsata.

ORDER RUMINANTIA.

Family CERVIDÆ.

Cervus alces.
" tarandus.
" Virginianus.

It will be perceived that I have omitted in this Catalogue the domestic animals. I could add nothing to the general stock of information concerning them; descriptions, therefore, would only have increased the size of this Report, without increasing its value. The

most important omissions, however, are those which relate to the Seals and Whales. The same reason has operated to produce this result, as in regard to our domestic animals. I could only copy what others had written; no opportunities have occurred by which I could make a single observation. I have, therefore, preferred to leave these subjects entirely untouched, though the Report appears, in consequence thereof, incomplete.

Yours,

With the highest respect and esteem,

E. EMMONS.

Albany, April 1, 1840.

NOTE. The measurements given in this Report are in feet, inches, and tenths.

QUADRUPEDS OF MASSACHUSETTS.

CLASS MAMMALIA.

The class Mammalia is divided by Cuvier into eight orders. The first is Bimana, of which man is the type. The second is Quadrumana, including animals with four hands ; it is entirely wanting in the United States ; no monkey, according to the best naturalists, has been observed beyond the twenty-ninth degree of north latitude. The succeeding order embraces numerous species which are widely distributed. They are characterized as follows :

ORDER III. CARNIVORA.

Characters of the order. Animals feeding mostly on animal food ; destitute of a thumb which is capable of free motion, and opposable to the toes ; possess three kinds of teeth. — It is very naturally divided into four families, viz. Cheiroptera, Insectivora, Carnivora, and Marsupialia. The first family is distinguished by pectoral mammæ, and the fourth by abdominal pouches. The species of the order Carnivora are exceedingly numerous. A more minute subdivision of them is into the following nine families. Vespertilionidæ, Soricidæ, Talpidæ, Ursidæ, Canidæ, Felidæ, Mustelidæ, Phocidæ, and Trichechidæ.

FAMILY I. VESPERTILIONIDÆ. The Bat Family.

Characters of the family. Animals formed for flight, and taking their prey on the wing ; nocturnal ; supplied with nails in the form of hooks for the suspension of the body. Teeth. Incisors $\frac{4}{6}$; canines $\frac{1}{1}=\frac{1}{1}$; molars $\frac{4}{5}=\frac{4}{5}$ or $\frac{5}{6}=\frac{5}{6}$; $=32$ or 36. Superior incisors in pairs ; the second often minute. Inferior,

crowded and bilobed; anterior molars conical, posterior bristled with points; nose without a furrowed, wrinkled and leaf-like membrane; tongue smooth; membranes extended; tail entirely enveloped in the interfemoral membrane; fur soft and thick.

Observations. Dr. Richardson assigns sixteen species of Cheiroptera to North America. Other authors have indicated no less than twenty-four. The latter number is considered as too high, or as not being sufficiently well characterized. But nine species, according to De Kay, have been detected in the United States, and five only have been described as belonging to the State of New York.

Genus Vespertilio.

Generic characters. True grinders $\frac{3}{3}=\frac{3}{3}$; without nasal appendages; ears at most but little longer, and sometimes shorter, than the head.

1. Vespertilio pruinosus. Say. The Hoary Bat.

Vespertilio pruinosus, *Say*, Long's Exp., vol. i. p. 168. *Richardson*, Fauna Bor. Amer., p. 1.
Nycticeius tessellatus, *Raf.*
Hoary Bat, *Godman*, Am. Nat. Hist., vol. i. p. 68.
Figure; Ibid. p. 68.

Specific characters. Dental system; incisors $\frac{1}{6}=\frac{1}{6}$; canines $\frac{1}{1}=\frac{1}{1}$; molars $\frac{4}{5}=\frac{4}{5}$; = 30. Color about the ears and front, pale tawny; the remaining parts of the body, including the flanks and interfemoral membrane, except a narrow edging of the latter, dark ferruginous, intermixed with dusky black on the back, and all tipped with white, thus giving it a decidedly hoary appearance.

Description. The superior incisors are conical and sharp-pointed, and separated from each other by a wide space. Inferior incisors very short and almost concealed, and in close contact with each other. The upper canines are almost twice as high as the molars. The nostrils are 2 lines apart, and turned a little outwards, and have a raised margin. Ears shorter than the head, nearly circular. The form of the tragus is nearly that

of a scalene triangle, obtuse and arcuated. Interfemoral membrane triangular, and terminated with a slight projection of the tail; the wing membrane presents some hairy patches above the elbow joint, and at the roots of the metacarpal bone; the hind feet are covered with a hoary fur above, and are furnished with short, curved claws.

Dimensions.

	in.	t'ths.
Length of the head and body, . . .	4	0
Tail, ...	2	0
Spread of the wings, ...	15	0
Distance between the ears, . . .	0	7

Observations. This species of Bat is very widely distributed. It was first noticed by Mr. Nuttall at Council Bluffs, on the Missouri; and Mr. Say describes an individual which was captured in the same neighbourhood, in Long's Expedition. According to Dr. Godman, it has been taken near Philadelphia. It has also been found in Georgia by Major Le Conte, and near Charleston in South Carolina by Dr. Backman. Still farther from the place of its first discovery, it has been found near Salem, Massachusetts. From these facts, this fine species may be considered as common throughout the United States, and especially on the Atlantic coast. Dr. Richardson met with it also as far north as latitude 54°. Mr. William Cooper, whose opinion is always valuable, supposes it may migrate to the South from this high latitude. It is sometimes seen on the wing during the day especially in cloudy weather.

2. Vespertilio Noveboracensis. New York Bat.

New York Bat, *Penn.*, Syn. p. 367. *Idem*, Arct. Zool. i. p. 184.
Vespertilio Noveboracensis, *Gmel.*, Syst. i. p. 50, sp. 21. *Harlan*, Fauna Am., *Godman*, Am. Nat. Hist. i. p. 68.
Red Bat of Penn., *Wilson*, Amer. Orn., plate 50, p. 60.
Taphozous rufus, *Lesson*, Mamm.
Nycticea Noveboracensis, *Le Conte*, in App. to McMurtrie's *Cuvier*, i. p. 441.
Figure; *Godman*, Am. Nat. Hist. i. p. 68.

Specific characters. Dental system. Incisors $\frac{1}{6}=\frac{1}{6}$; canines $\frac{1}{1}=\frac{1}{1}$; molars $\frac{4}{5}=\frac{4}{5}$; = 30. Color reddish tawny above, varying

in depth in different individuals; ears short, roundish, naked on the anterior half above, and furnished within with merely a thin covering of hairs.

Description. There is a slight hoary appearance which arises from the cream-colored fur which is intermixed with the reddish tawny. The reddish tawny prevails on the interfemoral membrane. Wing membranes naked above, excepting a small spot at the base of the thumb and fore fingers. At the insertion of the wing is a white mark, which is most conspicuous on the under side. Color beneath paler than above. Incisors short, minute, crowded, and rise but little above the gum; nostrils rounded and surrounded by a swollen border, and grooved superficially, and opening obliquely outwards.

Dimensions.

		in. t'ths.			in. t'ths.	
Total length, from		3	0	to	3	8
Tail,	"	1	3	"	1	5
Fore arm,	"	1	3	"	1	5
Tibia,	"	0	7	"	0	8
Spread,	"	10	0	"	11	0, *Cooper*, Cheirop. U. S.

Observations. This species is found in Williamstown, and is probably more or less common in this State.* Its dental system is obscure, and hence there has arisen some discrepancy in the descriptions. It varies also in the depth of its color, some individuals being much paler than others. During winter it remains in a torpid state, in caverns and similar places. The female is larger than the male, and produces four or five at a birth.

3. Vespertilio Carolinensis. Carolina Bat.

Vespertilio Carolinensis, *Geoff. St. Hilaire*, in Ann. du Muséum, viii. p. 193, sp. 2. figs., &c. *Le Conte*, in App. to McMurtrie's *Cuvier*, i. p. 441.

Specific characters. Dental system; incisors $\frac{2-2}{6}$; canines $\frac{1-1}{1-1}$; molars $\frac{4-4}{5-5}$; = 32. Color a uniform brown, approaching to chesnut. Fur beneath yellowish, soft, and glossy, and covering

* It is also common to New York and Pennsylvania, and is even found at the base of the Rocky Mountains.

the upper and inferior parts of the head and body. The remaining parts naked, except a few scattering hairs on the toes. Ears large, naked, except near the head, with the tips obtuse, and curving outwards, emarginate on the posterior edge ; tragus nearly a line broad, linear, obtuse, and destitute of hairs. Last joint of the tail free.

Dimensions.

	in.	t'ths.	
Total length,	3	8	
Tail,	1	5	
Fore arm,	1	8	
Tibia,	0	8	
Spread,	11	1,	*Cooper*, Cheirop. U. S.
Length of skull,	0	8	
Width over the zygoma,	0	5	

Observations. This species was taken by one of our College students during a warm day in February. The agreement in the characters of this individual is so perfect, that I have not hesitated to notice it as the Carolinensis, though it is not credited to a region so far north as this. Mr. Cooper has frequently procured it on Long Island, and, considering the wide range which the preceding species take, it is to be inferred that this may also be widely distributed. This bat is said to resemble the *subulatus*, and might be mistaken for it, did not the dental system disagree, the latter having six molars in the lower jaw, while the former has only five. It is not improbable, that the *subulatus* is already known to some of the naturalists of Massachusetts, inasmuch as it is credited to New Hampshire by Dr. Pickering. It has not, however, fallen under my notice.

The *noctivagans* is another species known in New York, inhabiting more especially Long Island.

Dental system ; incisors $\frac{2}{6}=\frac{2}{6}$; canines $\frac{1}{1}=\frac{1}{1}$; molars $\frac{5}{5}=\frac{5}{5}$; $=34$. It has dark black-brown fur, tipped with white on the back, giving it an aspect which at once distinguishes it from the preceding species. It is considered as being more common at the South than at the North.

The nocturnal habits of the Bats render their investigation somewhat difficult, and probably on this account our known species are so few in number.

They are undoubtedly useful to man by destroying a great number of insects, and probably they are in no way injurious. They may be preserved in confinement, and fed on flies and meat.

The Bat is very acute in the sense of hearing, its external auditory apparatus being extremely large for an animal so small. This large developement is undoubtedly intended to assist it in taking its prey during a time when the organs of sight are incapable of their fullest exercise.

FAMILY II. SORICIDÆ. The Shrew Family.

Characters of the family. Insectivorous, or feeding principally on worms and insects. They resemble the bats in the disposition and form of their teeth, more particularly in their molars. The incisors are generally large and robust. Their bodies are cylindrical, and covered with a fine velvety fur of a bluish black, and quite glossy in its lustre. They are furnished with a flexible proboscis, or elongated snout, which projects beyond the incisors, and which is employed both in making its passage in the ground, and for the conveyance of food to its mouth. Their eyes are small and obscure, and concealed in the fur, and their ears scarcely project, though their hearing appears to be acute. Tail moderate in length, and covered with hair. Feet all formed for running. Some of the species are furnished with ciliæ between their toes to aid them in swimming ; they all take more or less to the water. All the species subsist on animal food, which they require at short intervals. They feed on carrion or putrid flesh, and are hence to some extent scavengers. Some species are quite pugnacious, so that it is rare to find two together, unless in the act of fighting.

Odor strong and musky, rarely eaten by cats or other animals. The musky glands are situated on the sides nearer the anterior than the posterior extremities. The water species burrow in the banks of streams. They produce from 5 to 8 at a birth. Animals all small, and allied to the true Moles both in structure and habits.

Genus Sorex. Shrew.

Generic characters. Incisors $\frac{2}{2}$; false grinders $\frac{5}{2}=\frac{5}{2}$; true grinders $\frac{3}{3}=\frac{3}{3}$; $=30$. Incisors produced in the lower jaw ; base

horizontal, with the extremity turned into a hook ; snout alternate, tail moderately long ; feet all formed for running ; toes weak, separate ; teats six or eight ; sebaceous glands on the flanks.

1. Sorex brevicaudis. Say. Short-tailed Shrew.

Sorex brevicandis, Long's Exped., i. p. 164. *Godman*, Am. Nat. Hist. i. p. 79.

Figure ; Ibid. p. 81.

Specific characters. Body dark lead color above ; lighter beneath ; ears white, concealed in the fur ; nose emarginate, naked ; feet feeble white, first and fifth toes shortest ; tail depressed, and short. First discovered in Missouri.

Dimensions.

	in.	t'ths.
Whole length, ...	4	5
Head and snout, ...	1	1
Lower jaw, ...	0	7

Observations. The general character of the species may be learnt from the remarks already made. The Shrews are remarkable for their glandular apparatus, which gives them the strong musky odor ; it is supposed by Geoffroy to be connected with the sexual appetite, and to serve as a guide to conduct the sexes to each other. The species which is described, is retained on the authority of the former catalogues. I have not been able to meet with it, and I have some doubts of the existence of this species within the limits of this State.

Although the Shrews form burrows in the ground, it cannot be inferred that they are at all injurious to the agriculturist, but, on the contrary, that they are rather beneficial ; at any rate, no positive injury is known to be produced by them. There is, however, a tradition abroad concerning them, which, if true, would justly raise a prejudice against them ; it is this, that if a Shrew should run over the leg of a cow or a horse while reposing in the grass, it would cause lameness ; for this reason the animal is invariably killed when an opportunity occurs. The Shrews, like the Moles, are impatient of hunger. All the species form a nest of grass in some sheltered place on the surface, among the

thick herbage, or in a hole in a bank. From the fact, that in the summer many are found dead without any external injury, it is supposed that an annual mortality prevails among them. It is suggested, however, that it may arise from a deficiency of food produced in a dry season by the escape of worms on which they feed, either deep in the earth, or into the more distant moist places.

The Shrews are extremely expert in the water, darting over its surface, or diving to the bottom with the greatest agility. While in the pursuit of their food, the least noise or motion disturbs them, when they escape instantly into their holes in the bank. In the specimens of Sorex which have fallen under my observation, I have not been able to discover, even with the microscope, any nostrils, the termination, or the extremity, of the nose being apparently an imperforate membrane.

FAMILY III. TALPIDÆ. The Mole Family.

Characters of the family. The animal known as the Mole, may be considered as the type of the family. The most essential characters are derived from the feet and teeth. In the Soricidæ, the feet are formed for running, but in the Talpidæ for digging; and so perfect is their construction, that they are enabled to make their way in the earth with great rapidity. The means of subsistence in both families are much the same; their favorite food consisting of earth-worms and insects, which they require almost constantly; hence their toil is necessarily unremitted, and the animal is constantly engaged in burrowing in search of a constant supply.

The Soricidæ, by the structure of their feet, are much better formed for dwelling on the surface, while the Talpidæ are almost entirely prevented from moving except in their burrows. This family embraces three genera, the *Talpa*, or true mole, which has not yet been discovered in the United States, the *Scalops* and the *Condylura*. The Scalops has no canine teeth, whereas the Talpa has two in each jaw, and the Condylura two in the upper only. In each genus, the fore feet are palmate; the fingers are short, and are supplied with long and slightly arcuate nails, admirably adapted to the removal of earth, and the making subterranean

galleries. They take to the water readily, and swim rapidly, and being supplied with a dense, thick coat of fur, they leave it without being wetted. The form of the body is cylindrical, terminating anteriorly in an acute snout, which extends beyond the incisors. The sight is much less perfect than in the Soricidæ; indeed, the eyes appear rather as rudiments of an organ, than as intended for the performance of the important function of sight. The nostrils are exceedingly small, and invisible in the dried specimens. A groove divides the snout into two equal parts. In the *Condylura* the front teeth project forward, while in the *Scalops* they stand at right angles to the jaw, or in the position of human teeth; besides the difference in the position of the teeth, the Condylura is furnished with a circular fringe at the extremity of the nose, whence it has received the appellation of the *Star-nosed Mole.*

Genus Scalops. Cuv.

Generic characters. Incisors $\frac{2}{2}$; molars $\frac{1\,0}{1\,0}=\frac{1\,0}{1\,0}$; = 44.* Snout long and pointed; fore feet palmate, and formed for excavation, and concealed in the skin up to the wrists.

1. Scalops Canadensis. Shrew Mole.

Brown Mole, *Penn.*, Arct. Zool. i. p. 141.
Sorex aquaticus, *Lin.*, System.
Shrew Mole, *Godman*, Am. Nat. Hist. i. p. 84.
Mole, *Lewis and Clark*, Journal.
Figure; *Godman*, i. p. 81.

Specific characters. Color uniformly a light slate; body elongated, cylindrical, and tapering rapidly from the insertion of the fore feet to the snout, which is elongated and grooved on the upper and lower surfaces; tail short, tapering, and terminated in a thin pencil of hair.

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* The number of teeth is stated as only 30 in Stark's "Elements of Natural History," an error easily proved by inspecting the mouth of the true Scalops. The same author has erred also in giving the dental system of Sorex. There is more excuse in this case, as the false grinders are small and crowded.

Description. The upper incisors are white, and stand at right angles to the jaw; they are comparatively wide, and resemble the middle incisors in man; they are also longer and more robust than the lower. The grinders have a considerable resemblance to those of Bats, being studded, or rather bristled, with points. In the specimen before me, there are no vacant spaces between the incisors and false grinders. The extremity of the nose is naked and grooved. It is a flexible proboscis, capable of extension, and is used for the conveyance of food to the mouth. There are numerous hair-like, grayish whiskers, both on the upper and lower jaw. There is no distinct neck, but a gradual tapering from the anterior legs to the nose. The body is long, thick, and cylindrical, and having but a slight taper towards the tail. The anterior legs are short and stout, and the whole arm and fore-arm is concealed beneath the skin. The back of the hand is adpressed, and sparsely covered with hair of a lighter color than that upon the body. They are situated far towards the anterior extremity of the body. Nails white, long, linear-lanceolate, and rather obtuse, curved above, and slightly hollowed out beneath. Fingers extremely short. Posterior extremities smaller by one half than the anterior; nails, somewhat curved, but not hooked; middle one the longest and largest; palm turned outwards and backwards; fur light slate, darker beneath, velvety.

Dimensions.

	in.	t'ths.
Whole length of the head and body,	6	0
Tail,	1	0
Pencil of hair terminating the tail,	0	5
Length of the hand,	0	7
" middle nail,	0	3
" foot,	0	7
" skull,	1	3
Width of the hand,	0	5
" foot,	0	2½

Observations. This animal is usually met with in low, damp places, as such are the most productive of its natural food. The whole body is formed for securing strength, and its shape and the structure of its limbs fit it admirably for an underground residence.

It lives on insects and earth-worms, which it obtains by constant labor in excavating the earth; and so perfect are its adaptations, that it suffers no fatigue in this constant and laborious pursuit.

This animal renders some considerable service to man in loosening the soil, and in destroying insects which injure the roots and herbage of plants.

It has a great resemblance to the English Mole, and might be mistaken for it, if its dental system were not examined.

The Shrew, says Godman, is the most active in the morning, at mid-day, and in the evening; they come regularly to the surface at 12 o'clock. When their habitations are attacked and injured, they will repair them; hence they appear to be attached to their habitations. In eating, they employ their flexible snout, with which they thrust their food into their mouths by doubling it backwards.

When taken, they become partially domesticated, as they will receive their food from the hand, and will follow it when moved about in the place of their confinement.

Genus Condylura.

Generic characters. Dental system; incisors $\frac{2}{2}$; canine $\frac{1}{0}=\frac{1}{0}$; molars $\frac{3}{3}=\frac{3}{3}$; = 38. Fore feet broad, palmate, formed for digging. External ears none; nose crested and slender; tail long.

1. Condylura longicaudata. Desm. Star-nose Mole.

Long-tailed Mole, *Penn.*, Hist. Quad., ii.
Talpa longicaudata, *Erxl.*, Syst., tom. i. p. 118.
Condylura longicaudata, *Harlan.*, Faun. p. 38.
Condylura longicaudata (*Illiger*). *Richardson*, Fauna Bor. Am. p. 13.

Specific characters. Color bluish black; body thick, and covered with a thick velvety coat of fur; head long and tapering; nose furnished with a cartilaginous star-like fringe, with eighteen rays in the circumference, and two short bifid ones attached beneath the nostrils; tail long and tapering.

Description. The color is uniformly bluish black, and the fur covering the whole body soft and velvety. The tail is rather thick near the body, but becomes slender and tapering towards

the extremity ; it is covered with short hair. The length of the tail is about one third of that of the body. Extremities short and robust, especially the anterior ones, which are covered on the back with scales intermixed with a few hairs. Posterior extremities longer than the anterior, but more slender, and furnished with scales and hairs thinly interspersed ; hind claws white, narnow, and sharp pointed.

Dimensions.

	in.	t'ths.	
Length of the head and body, . .	4	9	
Tail, ...	2	9	
Head, ...	1	3,	*Richardson.*

Observations. The preceding species is less common than the succeeding, indeed, it has not fallen under my observation, while the *Macroura* is quite common.

2. Condylura macroura. Harlan.

Condylura Macroura, *Harlan*, Fauna Am. p. 39. *Richardson*, Fauna, Bor. Am. 284.

Figure ; Ibid., p. 284, plate 24.

Specific characters. Color bluish black ; fur thick and darker beneath ; tail long, thick near the body, and tapering towards the extremity.

Description. The upper incisors project forward, and approach each other obliquely from their sockets, leaving a triangular vacant space at their roots ; canines conical, longer by one half than the succeeding teeth ; canines as well as the false grinders hooked a little backwards ; of the latter there are four ; grinders four on each side, and bristled with points ; teeth white ; the phalanges short ; nails long, standing obliquely to the hand, more slender than in the Scalops ; tail long, strangulated at the base, and largest about one third its distance from the body ; slightly compressed ; pelvis small and narrow ; humerus remarkably thick and stout ; clavicles supported by an arch of bones which are braced against the sternum ; scapula long and narrow, and without a broad expansion of bone ; vertebræ somewhat quadrangular, rounded on the inner surface ; lower jaw long and slightly arched, with the incisors standing forward and forming a small segment of

its arch, which is convex upwards, accommodating it to the concavity of the upper jaw.

Dimensions of the Skeleton.

	in.	t'ths.
Length of the skull, ...	1	6
Greatest breadth posteriorly, . . .	0	6
Length of the lower jaw, . . .	0	9
Tail, ...	2	9
Whole skeleton, ...	7	0

Observations. By comparing these dimensions with those in the "Fauna Americana," it will be seen that there is an essential difference. Having, however, the skeleton before me, I am able to express myself confidently as it regards the measurement now given, and also as to the entire accuracy of the whole description.

FAMILY IV. URSIDÆ. The Bear Family.

Characters of the family. This family is distinguished by the form of the feet, being, as it is termed, *plantigrade*. They have the long canine teeth of the true carnivora, but the form of their molars is such, that they may feed on roots, grain, &c. Their nose or snout is generally elongated. They are capable of sitting on their haunches, and using their fore feet in conveying food to the mouth.

Two species only are now known to belong to this State, the Black Bear and Raccoon. The Badger may possiby be found on the Green Mountain range. My information, however, is too imperfect to enable me to speak confidently in relation to it. The same may be said of the Gulo, or Glutton.

Genus Ursus.

Generic characters. Dental system ; incisors $\frac{6}{6}$; canines $\frac{2}{2}$; molars $\frac{6}{7}=\frac{6}{7}$; $= 42$. In the upper jaw the two anterior molars small, the three posterior tuberculated, the last of which is the roughest. Ears and tail short ; feet plantigrade.

1. Ursus Americanus. Pallas. The Black Bear.

Ursus Americanus, *Harlan*, Fauna, p. 51.
Black Bear, *Penn.*, Arct. Zool., i. p. 57. *Warden*, United States, i. p. 195. *Godman*, Nat. Hist., i. p. 114.
Mucquaw, Algonquins.
Figure; *Godman*, i. p. 114.

Specific characters. Nose on the same line as the forehead, which is gibbous ; hair black, straight, and shining.

Description. The muzzle is often brownish. There are also two brown or fawn-colored spots in some individuals over the eyes ; hair coarse and black to the roots ; fur brown beneath, thick and somewhat curly in the cub ; tail short ; ears high, oval, far apart, and rounded at their tips ; palms and soles of the feet short in comparison with those of the Brown Bear of Europe ; nails long and curved. There is a long, vacant space between the first and second molar. First molar situated at the root of the canine, both projecting forward.

Dimensions.

The whole length of a full grown individual is not far from 4 feet 10 inches.

1. Skull.

	in.	t'ths.
Length from the incisors to the occipital crest,	11	2
Measured over the palatine bones,	9	0
From the incisors to the meatus externus,	8	2
Lower jaw from the incisors to the condyles,	6	6
Height of the cranium,	3	8
Depth of the frontal sinus,	1	0

2. Skull.

Length measured over the skull from the incisors to the occipital crest,	13	0
Length over palatine bones,	11	8
Length from the incisors to the meatus externus,	9	8
Greatest width at the zygomatic arches,	7	2
Length of the projecting part of the canine tooth,	1	0
Length from the occipital crest to the extreme of the nasal bones,	11	2
From one orbit to the other, across the forehead,	3	0
From one canine tooth to the other at their base,	1	8
From their tips,	2	0

	in.	t'ths.
Length of the posterior molar,	1	0
Width of the zygomatic space,	2	8
Length of the lower jaw measured on the outside,	8	0

Observations. So far as information can be gathered from writers or hunters, there is but one species of bear inhabiting the New England States. Individuals present, it is true, considerable diversity in size, color, and form ; but they furnish no permanent marks by which a distinct species can be formed. Thus, some individuals have the fawn-colored spots over the eyes ; others are marked with a white stripe along the forehead, or nose ; and others still have a white spot beneath the chin. There is also a difference in the general color of individuals ; some are much blacker than others ; this character, however, varies somewhat with the season of the year, as they are always darker in the spring. There is too, a marked difference in the length of the legs, so much so, that hunters always notice it, and speak of this character as marking a distinct variety or kind. The above differences are to be considered as only accidental, and not occurring with sufficient uniformity to make specific characters.

The configuration of the cranium of the Bear is a very distinctive family mark or character. Thus, the line extending from the base of the incisors to the occipital crest, is uniformly arched. The length is also great in proportion to the width, or, in other words, the skull is deep, narrow, and elongated. In conformity with the general form, the axes of the eyes are almost on a line with the long axis of the cranium. The middle of the skull is narrow, the zygomatic arches long, and the portion occupied by the eye small. This arrangement gives a large space for the powerful temporal muscles, thus increasing immensely the power of the jaws. The Bear subsists principally on fruit, such as apples, acorns, and nuts. Grubs and worms are also sought for, as is well known by their turning over logs, and removing the bark from stumps and decayed trees. Honey and all sweet fruits are peculiarly grateful, and furnish for him a rich repast. An indication of this is afforded by his selecting, when he visits an orchard, the sweetest fruit for his meal. The Bear frequently destroys pigs and sheep. He is, however, more injurious to the

farmer, by his visits to the fields of corn. The time, selected for his depredation, is when the corn is soft and in its milk; he then eats much, and breaks down much more. The Bear, when taken young, is susceptible of domestication, and becomes playful, though, as it increases in age and size, it is apt to take offence, plays rather roughly, and becomes rather a dangerous pet. It recognises all who may belong to the family; but, in order to keep it in subjection and obedience, the free use of the whip is necessary, and it learns very soon who is master.

In the domestic state it does not hybernate, nor can it be compelled to go into that state. In one instance where two had been confined in a hole, and shut in for the winter, it was found that the stronger had devoured the weaker, and had become extremely thin and poor. Bears in New England go into winter quarters at the fall of the first snow, if it is in considerable quantity. Unless the ground is covered, however, to the depth of 5 or 6 inches, it does not seek a winter retreat. When this has taken place, they may be traced to their lodging which they may have selected at some previous time. This they approach not directly, but by a number of diminishing circles, as if aware that by such routes they increase the difficulty of pursuit, and thereby secured a more safe resting-place for the winter. The male goes into this retreat alone, while the female, if she has cubs, is accompanied by them. In arranging themselves for their winter's sleep, the dam places herself foremost, or towards the entrance of their retreat, and the young immediately in the rear, an arrangement which is intended to secure the safety of the family. When their position is once taken, it is probable that it is not changed until they are aroused by warm weather, as it is invariably found that the old one is always in front; and instances have occurred, where the snow has been broken away, and disclosed the old one in her sitting posture, though still fast asleep. The precise period, at which the bear goes into winter quarters, depends on the fall of snow. If that is late, he wanders about, feeding on mast or acorns, &c., and is very often quite poor before his retirement. Occasionally they leave their retreats in January or February, if the weather is warm for several days in succession. The female goes with young seven months, and brings forth pretty uniformly two cubs at a birth. The

time for parturition is either in January or February, or early in March. The young continue with the dam the whole of the first year, and part of the succeeding, as they are frequently found in company. The cubs, and sometimes an old female, become extremely fat ; they have been known to yield sixty pounds of oil. The Bear is habitually a great traveller, removing from place to place during the summer and fall. His travels, however, are confined to a certain circuit, unless disturbed, for he seems to go the rounds, and follows each time the same beaten track. In his travels he frequently turns aside to wallow in mud holes, especially when the weather is hot and sultry. When suddenly met by man, or any uncommon incident occurs to arrest his attention, he rises and stands upright on his posterior legs, and surveys with attention the object before him. In this position he reconnoitres till he is apprehensive of danger, when he instantly escapes into the neighbouring thicket.

The Bear is a difficult animal to destroy, in consequence of its tenacity of life. The skull is so formed, that it very effectually protects the brain from injury. The space between the tables is at least an inch beneath a large portion of the frontal bone. Hence it is a fortunate shot to lodge a ball within the head. Bears leave the vicinity of settlements and dwell during the summer in the most secluded places, choosing those which are marshy, or in the immediate vicinity of lakes and ponds. They are induced to this procedure by the security it furnishes for rearing their young. At the first appearance of corn and cultivated fruits and grain, they return to the settlements. In the pursuit of their objects, they travel the same routes, which are termed by hunters the *run-ways*. It is near one of these travelled paths, that the hunter places his traps, knowing by long experience, that, if any are in the neighbouring mountains, they will sooner or later come that way, and that they will invariably travel the common road. It is often the case, however, that when an old Bear is pursued, instead of leading in the run-way, he selects the worst passages that can possibly be found in the whole mountain. He will go through the most impassable thickets, over the fallen bushy tops of trees, up the steepest cliffs, where it is difficult for dogs to pursue, and next to impossible for man to follow. I have

known them to elude their pursuers for a whole week together, and, when finally taken by means of fresh pursuers, it has been found that the hard flesh on their feet was worn off to the bone. Such instances show that the understanding of this animal is of a superior cast; indeed, Bruin has won himself some celebrity for his cunning, and by no means ranks low in the scale of intelligence.

The Bear is hunted by a half breed of hounds, or by cur-dogs. The object of the hunter is to compel him to take to a tree. This he is disposed to do when the dog bites him severely behind, or annoys him by a continual bark. Sometimes a small courageous dog is more successful in treeing him than a large one. Their strength is great. I have known them, when in the trap, if it became fixed, to tear off the entire foot at the ancle by one effort, and escape on three legs. When attacked, they always rise upon their hind legs, or sit upon their haunches, and defend themselves by their fore feet, or, we might say, by their arms; and their mode and manner of doing this is effectual to preserve them from the most furious attack of many dogs; some of which get their ribs broken, others get severely scratched, and others are scalped. But their most effectual way of dealing with their pursuers is to squeeze them in their brawny arms against their bodies.

The Bear is a stranger in most parts of this State, and probably far more common on the Hoosic Mountain range than in any other part. It is not many years since great numbers appeared there at once, and between twenty and thirty were taken in the course of one autumn, on the mountains in Adams and Williamstown. They are still to be found, and several have been taken every year since.

The valuable parts of this animal are its oil and skin; the oil sells for about one dollar per pound. The skins vary in value from four dollars to twelve. A Bear-skin robe which is made out of the best parts of good skins, sells for from thirty to fifty dollars. These robes wear much longer than those of the Buffalo, being in texture much stronger, and more impervious to rain; and, besides, they are considered much handsomer and richer in appearance.

The Ursus Americanus inhabits every wooded district on the American continent, and is found in the whole range between the

Atlantic and Pacific Oceans ; and from the shores of Carolina to the Arctic seas.

Hence he may be considered as one of the most widely distributed animals of the globe. Undoubtedly his constitution is fitted more particularly for a temperate climate ; still his thick coat of fur effectually enables him to inhabit the cold regions of the North, and secures him a safe residence wherever food can be procured. Being an eater of vegetables as well as of flesh, he is still better enabled to take this wide range of territory, than most of the mammalia, man excepted.

Genus Procyon. Storr.

Generic characters. Dental system ; incisors $\frac{6}{6}$; canines $\frac{2}{2}$; molars $\frac{6}{6}=\frac{6}{6}$; $= 40$. The last three grinders of each jaw tuberculated ; feet pentadactyle ; nails sharp ; muzzle pointed ; ears moderate ; tail long ; six ventral mammæ.

1. Procyon lotor. Cuv. The Raccoon.

Ursus lotor, *Lin.* Gm., i. p. 103. *Harlan*, Fauna, 54.
Le Raton, *Buffon*, viii. pp. 337, t. 43.
Procyon lotor, *Cuv.*, Règ. An., i. p. 143. *Sabine*, Franklin's Jour., p. 649. *Harlan*, Fauna, p. 53.
The Raccoon, *Godman*, Nat. Hist., i. p. 163.
Figure; Ibid., p. 161.

Specific characters. Fur brownish ; muzzle black, naked, and flexible ; a wide black or dark-brown band passes through each eye and cheek ; another of a similar color passes between the eyes, and is continued upon the forehead ; lips black ; pupils of the eyes circular ; ears erect, elliptical, with rounded tips, which, together with their edges, are of a soiled white ; tail ringed and bushy like the fox.

Description. The Raccoon has a round head, tapering and terminating in a rather acute snout, which projects considerably beyond the mouth. The dark bands, passing through the eyes and over the forehead, impart to the animal a very characteristic look. The general color is more or less gray, which is produced by a mixture of brown, black, and dirty white hairs. The back

is a grizzled brown, its fur consisting of a mixture of dirty white, ringed with black. The belly is considerably paler. The tail is long, pendant, and bushy, and has generally 5 dark rings around it. The extremities are short, and all the feet are provided with five toes, armed with strong nails. The animal is full-bellied, especially at its flanks, and, as it is partially plantigrade and its posterior extremities are longer than the anterior, it makes rather an awkward appearance when walking. It walks generally upon its toes, but, when it sits, it brings the whole of the sole of the foot upon the ground ; it easily assumes the sitting posture of the Bear, erects, and feeds itself with its paws.

Dimensions.

	ft.	in.	t'ths.
Length of the head and body,	2	0	0
" " head,	0	6	0
" " tail,	0	9	5
Height of the back, (*Richardson*)	1	1	0

Skull.

Length from the incisors to the occipital spine over the frontal bone,	5	3	
" " " to the foramen magnum,	4	0	
" " " to the meatus externus,	3	5	
Height,	1	9	
Length of the lower jaw,	3	3	
Width at the condyles,	2	6	

Observations. This animal has a distribution almost as wide as that of the Bear. It is a native of all the States of the Union, and is supposed to inhabit the shores of the Pacific Ocean. Its countenance is much like that of the Fox, but its gait and motions are those of the Bear ; it also partakes of the habits of the latter in its modes of living. The Raccoon sleeps by day and wanders about by night in quest of food, and to enjoy its gambols, for it is fond of play and frolic. Its food is green corn when it can be obtained, and it is especially fond of all sweet vegetables, and even of sugar, molasses, preserves, &c. It will also receive fresh meat, though it is not known to destroy any of the smaller animals. In a state of nature, therefore, it is supposed to subsist entirely on vegetables, though I have been informed that it often resorts to the water for the purpose of taking fish, for the truth of which I cannot vouch.

If taken young, it becomes perfectly tame and domesticated, in which state, however, it is very uneasy if confined, which it signifies by a most troublesome cry. When awake, he is always in motion, and appears to be examining every thing in his way, climbing chairs and tables, searching for sugar and sweet meats, feeling every little thing with his paws, thrusting them into every little hole it can find, and, when his curiosity is excited, taking up the object with his flexible fingers, and rolling it between his hands till its nature is fully ascertained.

This animal lives in hollow trees, which it scarcely ever leaves during the day ; but at twilight it goes abroad, and wanders about till break of day, when it returns to its retreat. It is rare, therefore, to meet with it in open daylight. The female produces from four to six at a birth, about the last of March or first of April. The young do not appear to continue so long with the mother as in the case of bears. The skin of the Raccoon is the most valuable part ; several of them make a handsome and durable robe. The meat of the young is frequently eaten, and is quite esteemed by some persons ; but the flavor of the old ones is not such as to recommend it in civilized life.*

FAMILY V. CANIDÆ. The Dog Family.

Characters of the family. Teeth formed entirely for eating flesh. Two tuberculated teeth posterior to the large carnivorous tooth in the upper jaw. This family embraces the dog, wolf, fox, &c.

Genus Canis. Lin.

Generic characters. Dental system ; incisors $\frac{6}{6}$; canines $\frac{2}{2}$; molars $\frac{1}{1}\frac{2}{4}$; = 42. The first three molars in the upper jaw, and the four small, edged ; the great carnivorous tooth above, bicuspid, with a tubercle on the inner side ; pupils circular, diurnal ; muzzle

* A pair, which the author had in possession for some time, and which were taken quite young, not more than a week old, acquired partially the power of barking, or rather their growl, when offended, was much of the nature of the bark of a puppy. The inquiry which this fact suggests to me is, whether, by perfect domestication, this animal would not fully acquire the bark of a dog, a faculty or power which it is supposed the latter animal has acquired by intercourse with man.

elongated ; tongue soft ; ears erect ; fore feet pentadactylous, hind feet tetradactylous ; teats inguinal and ventral.

1. Canis lupus. Lin. Desm. The Common Wolf.

Canis Lupus, *Harlan*, Fauna, p. 79. *Godman*, Nat. Hist. i. p. 255. Figure; Ibid., 255.

Specific characters. Tail straight, pendant, bushy ; fur gray, fawn-colored, with a black stripe on the fore legs ; eyes oblique.

Description. Color varies somewhat with the season and with age. In the summer the hair is short and yellowish-red ; in the winter, blackish along the back, and obscurely striped, with black along the sides ; large patch of white beneath the lower jaw, and another between the fore legs ; head thick, but the snout long and slender ; tail bushy, tufted with white and black, but never recurved like the dog's ; fore feet black in front ; voice a howl ; snaps when it bites, without retaining its hold.

Dimensions.

	ft.		ft.	in.
Whole length, from	3	to	3	6
Height,			2	5
Tail,				12
Head,				10
Ears,				3 or 2½

Skull.

	in.	t'ths.
Whole length measured over the frontal bones,	9½	0
From the incisors to the meatus externus,	8	0
Breadth at the base of the zygomatic process,	3	5
Greatest breadth at the zygomatic arches,	5	0
" " of the cerebral mass over the meatus,	2	3
Height over the same line,	2	1

Observations. The Wolf is capable of domestication and of forming attachments. It acquires its full size in about three years. It is savage and cruel in the wild state, and is compelled to wander, like a fugitive from justice, from place to place. When it has been taken young, and treated kindly, its nature is somewhat changed, and it is probable it would become kind and improved, like the dog. The Greyhound and the Wolf possess characters

somewhat allied, particularly in their memories ; both are forgetful, and little disposed to watch and guard the premises of a master. It would appear from the measurements below, that the American Wolf is somewhat longer than the European. It is not, from some cause or other, so dangerous, as it does not attack travellers as the European Wolf is known to do. The exact measurement of a Wolf in my possession, which was taken in Vermont, is as follows ;

	ft.	in.	t'ths.
Whole length, exclusive of the tuft of hair at the extremity of the tail,	5	0	0
Length of the shaft of the tail,	0	14	0
Length of the tuft,	0	3	0
Height at the fore legs,	2	1	0
" " posterior,	2	4	0
From the nose to the ear,	0	7	5
Length of the ear,	0	3	0
Circumference just behind the fore legs,	1	9	0

The measurement of a dried specimen of the American Black Wolf is as follows ;

	ft.	in.
Whole length,	4	4
Tail,	0	12
From the foot to the centre of the back,	1	5
Height posteriorly,	1	8
From the nose to the ear,	0	7
Length of the ear,	0	2

If the skin of the Black Wolf was from a full grown individual, it would indicate that it really may be a distinct species. The ear is narrower, and the nose rather more pointed, tail not quite so bushy, and the whole size is less. This individual was taken in Maine.

The Wolf brings forth from four to six young at a birth, which are born blind. They frequently hunt in packs, and act in concert. Their voice is a howl, which they greatly modify. A single Wolf produces such a variety of sounds, that the distant hearer often supposes it proceeds from half a dozen in a pack.

Genus Vulpes. The Fox.

Generic characters. Dental system ; incisors $\frac{6}{6}$; canines $\frac{1}{1}=\frac{1}{1}$; molars $\frac{6}{7}=\frac{6}{7}$; = 42 ; pupil elliptical ; tongue soft ; ears large and

pointed ; body slender and compressed ; tail long and bushy ; claws not retractile.

1. Vulpes fulvus. Lin. The Red Fox.

Canis fulvus, *Harlan*, Fauna, p. 89.
The Red Fox, *G dman*, i. p. 276.
Canis (Vulpes) fulvus, *Richardson*, Fauna Bor. Am. p. 91.
Figure; Ibid., plate 6.

Specific characters. Fur reddish or fulvous ; white beneath ; ears black behind ; fore feet and legs black before ; tail long, bushy, and terminated with white.

Description. The head is pointed ; color above fulvous, but varying in degree with season, age, and sex ; some individuals are quite red, while others are pale-yellow. In the spring, the color appears to fade. The quantity of white on the tail varies much in individuals ; in some, there is a larger intermixture of long, black, glossy hairs ; in others, the back is quite gray.

Observations. The Fox, like some of the smaller animals, instead of flying from civilized life, seems rather to increase in its neighbourhood, or at least this would be the case in mountainous districts, if laws for its extirpation were not enacted, and these would be ineffectual, were it not for the fact, that they take effect upon the young. During the operation of the late act in this State for destroying those animals which are injurious to the farmer, great numbers were taken, so that now, in the county of Berkshire, their number is very sensibly diminished. The Fox is unquestionably injurious in the sheep-fold, especially in the spring. It makes some little compensation by destroying mice, but its benefits to the farmer are not sufficient to entitle it to his protection. Its numbers will, therefore, always be kept within moderate bounds.

The habits of the Fox are so well known, his sagacity and cunning having become proverbial, that it is unnecessary to dwell upon this part of the subject. He is, moreover, oftener exposed to observation, than any of our larger animals.

In connexion with this species, it is proper to speak of the

Vulpes Decussatus, or Cross Fox, and the Black Fox. The former, if we may credit the statements of hunters, has been taken in Williamstown, while the latter has been observed in several instances, and has been captured in Stamford, Vt., an adjacent town. I have not, however, seen either, neither am I disposed to give full credit to the reports of hunters. The Cross Fox is found in New York, particularly in the northern counties. The Black Fox is rare throughout the Union, and only here and there is an individual known. Their skins sell for about twelve dollars.

2. Vulpes Virginianus. Gmel. The Gray Fox.

Description. Body silvery-gray, with a shade of red about the ears; darker from the shoulders to the posterior part of the back; near the body the hair is plumbeous, then yellowish, then white, and then tipped with lustrous black on the front; from the top of the head to the edge of the orbits, gray, while on the rest of the face, from the internal angle of the eye to within half an inch of the extremity of the nose, it is blackish; at the extremity on each side of the granulated tip of the nose, it is yellowish white. A fine line of black-tipped hairs extends upwards and outwards, from half an inch below the internal angle of the eyes, until it is intersected by a similar one about half an inch beyond the external angle of the eye, thus forming a very acute triangle, whose base is on the side of the face. Mystachial bristles black; under jaw blackish; inner surface of the ears yellowish; tips on the outside blackish-gray; remainder yellow. There is a white spot on the breast, and it is also white beneath; tail thick and bushy; extremity black.

The length of the head and body is about twenty-four inches, and the tail eleven. *Godman.*

This species is termed by furriers the *Wood-gray Fox.* It is rather smaller than the red, is less robust, and is sooner run down by hounds. It runs more like the hare, as it regards the width of its circles, when pursued. The species is rare in Massachusetts, but is common in the southern portion of New York, and in New Jersey and Pennsylvania.

FAMILY VI. FELIDÆ. The Cat Family.

Genus Lyncus. The Lynx.

Generic characters. Dental system; incisors $\frac{6}{6}$; canines $\frac{1}{1}=\frac{1}{1}$; molars $\frac{3}{3}=\frac{3}{3}$; $=28$; feet four-toed; nails retractile; head short; ears tufted, triangular.

1. Lyncus borealis. The Canada Lynx.

Felis Canadensis, *Lin.*, Cat Lynx, *Penn.*, Arct. Zool., i. p. 50.
Felis Canadensis, *Geoff.* An. du Mus. *Sabine*, Franklin's Journ., p. 659. *Richardson*, Fauna Bor. Am. p. 101. *Harlan*, Fauna Am. p. 98.
The Northern Lynx, *Godman*, Nat. Hist. i. p. 302.
Figure; Ibid., p. 302.

Specific characters. Color gray; ears tufted, with long black hair springing just behind the apex, bordered posteriorly with black, and running into the tuft; hair long and soft; tail short, terminated with black.

Description. The general color is rather a silvery gray, with a yellowish tint beneath, which appears if the hair is but slightly disturbed; extremities of the hairs brownish, then white, and then brownish extending to the base, intermixed with others entirely black; darker along the back; the fur along the back and head is brown; along the back of the neck, sides, tail, and its base, yellowish; the tail beneath has a white stripe; hair upon the breast and belly long, white, but still terminated with brownish; one brown spot on each fore leg near the body, and several on the breast behind the legs; ears terminated with pencils or tufts entirely black; bordered with black, which extends near to the base on the posterior, but only about half that distance on the anterior side; inside of this border it is yellowish, but more distinct posteriorly; base of the lower jaw surrounded with a fringe of long hair, shorter in the female; it is intermixed with gray, black, and white, the middle portion black; mouth surrounded with brownish fur or hair, more distinct at the extremity of the lower jaw; white beneath; whiskers black and white; tail terminated with black; white beneath; legs yellowish behind; toes

and nails concealed in long, dense, silky hair, and fur which is somewhat curled or crisped.

Dimensions.

	ft.	in.	t'ths.
Length of the head and body,	3	1	0
" " tail,	0	4	0
" " ear,	0	2	0
" " tuft,	0	2	0
Fringe and hair beneath,	0	4	5
Height at the back,	1	9	0
" at the anterior legs,	1	7	0

Observations. The Northern or Canada Lynx presents a very striking resemblance to the cat. Its head is round, and the nose is obtuse; its canine teeth are also grooved like the domestic cat's; it is more convex between the eyes. The two most remarkable characters of the Lynx are the beautiful pencils of black hair which ornament the ears, and the perfect hairiness of the soles of the feet, which have no naked spots or tubercles like the other species of the feline race. There are no very distinct stripes of black or brown; still we may perceive a tendency thereto in a good light; it is, however, more like a mottling, than an arrangement into stripes. The legs of this animal appear thick, in consequence of the length of the hair; it makes a round track, in which neither the marks of the toes nor of the nails appear. It was once common in this State, but appears now only in the depth of winter, and as a straggler. One was captured a few years since in the neighbourhood of Chester village in Hampden County. It was a fine, large male, and was able to resist the attacks of several dogs; it ascended trees with the utmost facility, leaping up their trunks at fifteen or twenty feet in single bounds. It is timid and shy, and never attacks man or the larger animals. Its flesh is eaten, and is esteemed by connoisseurs, and is said to resemble that of the hare in its flavor. Nature has supplied it with clothing remarkably well adapted to a cold climate; it is strictly a northern animal, and is found as far north as latitude 66°. It subsists principally on the Hare, and is most sure to be found where this animal abounds. The specimen which has given me an opportunity of describing it, was taken in Maine. It was a male, and was captured in the

depth of winter, and was evidently full grown and perfect in all respects. The fur of the Lynx is highly esteemed on account of its length and softness; for this very reason, however, it is not so durable as the fur of the Otter or Beaver. The skins are generally purchased for three or three and a half dollars.

2. Lyncus rufus. The Wild Cat.

Bay Lynx, *Penn.*, Hist. Quad. A. Arct. Zool., i. p. 51.
Felis rufa, *Harlan*, Fauna, p. 99. *Richardson*, Fauna Bor. Am., p. 103.

Specific characters. Color yellowish, or reddish-brown, mingled with darker spots of brown; inferior parts of the throat and body white or whitish; ears tufted; inside of the legs spotted with brown; tail terminated with dark brown, and with a small portion of whitish beneath, obscurely banded.

Description. The general color is rufous; some individuals are gray or yellowish-gray; ear triangular, and surrounded posteriorly with a blackish border, within which there is a triangular patch of yellowish white; tips ornamented with a black, but short pencil of hairs, which springs from just behind the apex; irides yellow; eyes partially encircled with a whitish stripe; front, and portions about the upper lip, striped with darkish-brown; fringe near the base of the jaw mixed with black; posterior legs dark-brown below the gambrels; fore legs lighter colored, and spotted inside; one spot larger, near the body.

Dimensions.

	ft.	in.	t'ths.
Length of the head and body,	2	0	0
" " tail,	0	4	5
Length of another individual,	2	5	0
Length from the nose to the base of the ear,	0	3	0
" " ear,	0	1	0
Height behind,	1	5	0
" before,	1	4	0

Observations. The Wild Cat stands high on its legs, has a short, curved tail, which makes the animal appear somewhat disproportioned. It resembles the common Cat more than the pre-

ceding. It varies somewhat in color ; some individuals are more gray than others, though not so much so as to conceal the general fulvous aspect. This species is easily distinguished from the preceding by the shorter pencils of hair upon the ear, and by the nakedness of the balls of the toes. This last character, it appears to me, is sufficiently important in the *borealis*, to constitute it a genus by itself. The tail is longer in proportion in the *rufus* than in the *borealis*, so that it is scarcely possible to confound the two. It resides in wooded and rocky districts, at a distance from habitations, or the resorts of men ; it lives on squirrels, birds, hares, &c. ; it is also very injurious to sheep-folds. It is still found in the mountainous districts of this State, particularly in Middlefield, Chester, Russel, and Blandford. The animal, like most of the feline race, is nocturnal in its habits, and is hence rarely exposed to observation in the day time.

Genus Felis.

Generic characters. Dental system ; incisors $\frac{6}{6}$; canines $\frac{1}{1}=\frac{1}{1}$; molars $\frac{4}{3}=\frac{4}{3}$; = 30. Five toes on the fore feet ; hind feet tetradactyle ; ears long, erect ; tail long.

1. Felis concolor. Lin. The Puma, or American Lion.

Felis concolor, *Harlan*, Fauna, p. 94.
The Cougar, *Godman*, Nat. Hist. i. p. 291.
Figure ; Ibid., p. 291.

Specific characters. Color uniformly dun or fulvous ; beneath paler ; tail long, extremity dark-brown in the male ; ears rather rounded and prominent ; limbs thick and stout.

Description. The color of the Puma is remarkably uniform at all seasons of the year. Head rather long ; ears light-colored inside, but blackish posteriorly ; face whitish about the internal angles of the eyes, upper lips, chin, and the angles of the jaw ; hair of the whole body thick and short ; tail of the male longer than the female, and darker brown at the extremity.

Dimensions.

	ft.	in.	t'ths.
Whole length of one of the largest individuals,	9	4	0
Tail of a female,	1	9	0
" " male,	2	3	0
Length of the ear,	0	2	0

Skull.

	ft.	in.	t'ths.
Length measured along the palatine bones to the foramen,	0	6	4
" over the frontal bones to the crucial ridge, . .	0	9	4
" incisors to the meatus externus, . . .	0	5	5
Width at the zygomatic arches, ...	0	5	3
Greatest width of the lower jaw, . . .	0	4	0
Length of the canine tooth of the upper jaw above the gum,	0	0	9

Observations. The Puma is not found at present in this State. It has, however, been seen in the western portion long since its settlement. It is a cowardly animal, rarely if ever attacks man, and most of the tales relating to its depredations are fictitious ; in that portion of St. Lawrence County, New York, where they most abound, no instance is known of their having destroyed a single individual, man or child.* It preys of course upon all the animals weaker than itself ; it does not refuse even the hedge-hog, which it contrives to eat without swallowing its quills, by commencing its meal at the nose, and drawing the body through the skin as it proceeds. The skull from which the above measurements were taken, belonged to an individual not fully mature. The most remarkable feature of the skull is the convexity of the face ; the nasal and frontal bones being very distinctly arched, and, besides, the bones of the face, together with the frontal, form the largest portion of the skull, so that the part containing the brain is thrown back far in the rear. The thickest portion of brain is evidently immediately over the meatus auditorius externus. The sockets for the eyes are much larger than in the Bear, and their direction is more oblique to the axis of the cranium. The width of the skull is great in proportion to the length. In the absence of the teeth we may distinguish the skull by attentively marking the above characters. The tails of females which have fallen under my observation, are shorter than of the males, yet there may not be a constancy of character in this particular, which can be depended upon. The female brings forth two young ones at a litter, which are beautifully spotted with rather irregular, oblong spots of brown. These mostly disappear at the first shedding of

* A single hunter, in St. Lawrence County, not many years since, met five Panthers together, of which, with his dog and gun, he killed three at the time, and the next day the other two.

the hair. The Panther, though it will not venture to attack man, yet will follow his track a great distance ; if it is near the evening, he frequently utters a scream which can be heard for miles. When treed by dogs, if it is not much disturbed or wounded, it will often sit quietly on a branch, and purr like a cat, though much louder. In the day time it travels but little ; it usually lies concealed beside a log or rock until towards night, when it sallies out in quest of food. This animal, though known to be powerful, yet, in one instance, has been mastered and killed by a single dog. It was one, too, which was of about the common size. Still, there are very few dogs who may safely attack it. The description and observations apply to the species now found in the State of New York. It is quite doubtful whether I have delineated the entire species, and it is still a question whether the southern animal known as the Panther or Catamount, is the same as the northern. No opportunity has been furnished me of forming a satisfactory opinion by inspection and examination of specimens. From what I have been able to learn, the Puma's northern range is not much beyond the latitude of 45°, and it is evident that the terrestrial conditions most suited to it are the regions farther south.

FAMILY VII. MUSTELIDÆ. The Weasel Family.

Characters of the family. The Mustelidæ have long slender bodies, and short legs. Most, if not all the species, have odoriferous glands at the roots of their tails, which, in some instances, are extremely strong-scented. They are strictly carnivorous, and being powerful, active, and sanguinary in their habits, they are able to overcome animals larger than themselves ; this is true, however, only of a portion of the family, the Weasels and Martens ; the Mephitis or Skunk is rather clumsy, and less active, though equally fond of animal food. They differ somewhat also in their modes of living ; a portion preferring a dry wooded region, as the Marten, and others the banks of rivers and wet places, as the Mink and Otter.

Genus Mustela.

Generic characters. Dental system ; incisors $\frac{6}{6}$; canines $\frac{2}{2}$; molars $\frac{5}{6}=\frac{5}{6}$; = 38. Body elongated, ears rounded, legs short, feet pentadactyle.

1. Mustela Canadensis. Lin. The Fisher or Pekan.

Le Pekan, *Buffon*, xiii. p. 304. t. xlii. opt.
Mustela Canadensis, *Lin.*, Gmel., i. p. 95. *Harlan*, Fauna Amer. p. 65.
Mustela Pennanti, *Sabine*, Franklin's First Journ. *Erxl.* Syst.
Fisher, *Pennant*, Zool., i. p. 82.
Pennant's Marten, *Godman*, Nat. Hist., i. p. 203.
Figure; Ibid., p. 185.

Specific characters. Color mostly black ; nose, rump, tail, and extremities black ; face yellowish-gray ; head round ; ears low and wide at base, and semicircular ; margins whitish ; tail long and bushy.

Description. The color of the head and shoulders lighter, being of a yellowish, or brownish, or ash-gray ; hair and fur also of those parts shorter than on the rest of the body, darker beneath than above ; hair black or dark-brown at the extremity, then ash, and then darker at the roots ; fur uniformly brown, and of one color over the body ; head rather round, which contracts suddenly, and forms rather a pointed nose ; mystachical bristles brown ; the ears are wide asunder ; feet and legs short, strong ; toes free, black, and armed with sharp nails ; tubercles small, and concealed by the dense hair ; tail black, and rather bushy. There are white spots at the base of the anterior, and a large one between the posterior legs, and a small one on the throat. In another individual, there were no white spots. The general color of this was ash above, and nearly black beneath ; inner toe shortest.

Dimensions.

	ft.	in.	t'ths.
Whole length,	3	1	0
Tail,	1	1	0
From the nose to the ear,	0	3	0
Height at the fore legs,	0	8	5
" " posterior,	0	9	5

Skull.

	ft.	in.	t'ths.
Length along the palatine bones,	0	4	0
Over the frontal to the crucial ridge,	0	4	5
From the incisors to the meatus,	0	3	2
Width at the zygoma,	0	2	1
Height,	0	1	4

Observations. The variations in the color and size of the Pekan, have induced naturalists to divide it into two species. Probably as to color, the same individual varies with the season, and with age ; in the summer it is lighter than in the winter ; and as to size, it varies considerably ; there is one in the Albany museum larger than the one whose measurements are given above, but which differs from it in no other respect. This animal is extremely tough, and tenacious of life. It is active and sanguinary, and lives by plunder and bloodshed. In this respect it is fully equal to the feline race. It dwells in hollow trees, to which it confines itself generally during the day. Hence it is very rarely seen, even in those districts where it is quite common. It preys upon squirrels and other small animals. It is extremely troublesome to the hunter by robbing his traps, especially of sable. It becomes skilled in the practice, and will follow the sable line for miles, and destroy in the route every one which has been taken. To prevent these depredations, the hunter makes a large log trap sufficiently strong to hold the enemy, and his voracity generally causes him to fall a victim ; but occasionally the sagacity of the animal is more than a match for the hunter. He will entirely demolish the trap by tearing down the materials from the back side, and by this means obtain the bait without danger of being crushed.

The fur of the Pekan is not so fine and beautiful as that of the Marten. Still, it has some beauty, especially when combined with the long, black, glossy hair. It climbs trees with facility, and destroys the eggs of birds when it can gain access to them. It prefers damp places, or those in the vicinity of water, in consequence, as is supposed, of its fondness for frogs and other aquatic animals. The skin, when in good condition, is worth about one dollar and a half. It is occasionally found in the vicinity of Williamstown, particularly in that range of mountains

which extends northeast through Stamford, Vermont. Whether it is found in any other part of this State, I have not been able to learn.

2. Mustela martes. Lin. The Pine Marten.

Id., *Richardson*, Fauna Bor. Am., p. 51. *Harlan*, Fauna Am., p. 67.
Pine Marten, *Pennant*, Arct. Zool., i. p. 77. *Godman*, Nat. Hist. i. p. 200.
La Marte, *Buffon.*
Martes abietum, *Ray.*
Figure; *Godman*, i. p. 208.

Specific characters. Brown; yellow stripe along the throat and belly; head and margin of the ears whitish; legs and tail black.

Description. The color is yellowish-brown, varying somewhat with the season; in the fall, before the fur is good, it is reddish, and rather dirty or soiled in its appearance, but becomes pale towards spring; head triangular; muzzle pointed, and the nose extending beyond the lips; ears rounded, with whitish margins, rather large and open; eyes large, prominent, and remarkably lively; body long and flexible; tail long and bushy; feet rather short; fur of two kinds, the inner fine, soft, and of a light-yellowish color, or grayish, the outer long, shining, and ash-colored at the roots, but brown and glossy at the extremity, yet varying in intensity; some are black at their ends; legs and tail black; toes five, free, inner shortest, and armed with slender nails.

Dimensions.

Full grown male.

	ft.	in.	t'ths.
Whole length,	1	11	0
Tail,	0	6	0
Nose to the meatus,	0	3	0
Height at the fore legs,	0	4	6 to 6 0

Skull.

From the incisors to the occiput,	0	3	3
" " along the palatine bones,	0	3	0
" " " " meatus,	0	2	5
Width at the zygoma,	0	1	9
Height,	0	1	2

Observations. The Pine Marten inhabits the mountainous districts of Berkshire, especially where pine forests abound. It is, however, often found in beech woods, where it is sure of a more ready supply of food. Its nocturnal habits, and native shyness, effectually screen it from observation, even in districts where it abounds. Though this animal is formed for subsisting on animal food, still, when nuts are plentiful, it resorts to them for sustenance, and hence, in those seasons, the hunter is unable to procure it in much abundance, as it will not then take the bait, as they say. It is taken in a log trap, made and baited in such a way, that it cannot reach the meat without passing under the *dead fall* ; the bait being fixed to a spindle, it springs the trap, and lets the log fall upon itself while devouring the bait. To lead the animal along the line of traps, the hunter drags after him a dead squirrel, or a tainted piece of meat. By this means the Marten falls upon the course whenever he happens to cross the track, and is led along to the nearest trap. A line of Marten traps sometimes extends forty miles, though not in a direct line. The course is always in a circle, so that the hunter in visiting his traps comes round nearly to the place where he commenced his route. The Marten, if taken young, can be domesticated, in which state it is lively, playful, and cleanly, and is entirely free from any thing unpleasant ; it emits, on the contrary, rather an agreeable odor, and is hence termed the *sweet Marten*. It has all the sprightliness of the squirrel, and is very active in pursuing its game ; ascends trees readily, and in them it principally dwells. Its chattering is much like that of the gray squirrel. When it encounters an enemy, it bristles up, shows its teeth, and arches its back, and, when attacked, it bites unmercifully, and will not readily let go its hold. Hence, when a dog attempts to seize it, it resists so actively, that it often escapes, even from its jaws, unless the dog is accustomed to its warfare.

A remarkable arrangement is found in the organ of hearing in the animals living by the destruction of others ; thus, in the Pekan and Pine Marten, the bony process of the meatus auditorius is directed forward ; by this very structure they are fitted for the pursuit of prey ; and their moral qualities also seem to correspond, as they are far from being timid, or disposed to fly from an enemy,

but are rather inclined to meet and encounter him. Nature, too, seems to have given them the sense of smell in great perfection, as is evident from their following the tracks of other animals, and also that of the hunter who drags the bait after him. This arrangement of the outer ear, is an adaptation to an inward sense, if we may use the expression, an adaptation which shows design and fitness in a manner worthy of our admiration. In the Hare, we see a different arrangement. The meatus is directed backwards, and the difference of structure is no greater than the difference in the propensities of the two animals ; the one advances to the attack, the other flies for its life ; the one resists and bites to its latest breath, the other, if it cannot escape by flight, scarcely attempts to inflict a wound upon its pursuer. The one directs its ear forwards to catch the distant sounds of its flying victim, the other directs them backwards, that it may learn the progress of the pursuer, that it may know whether it is safe to repose, or whether its efforts to escape must be redoubled.

The skin of the Marten is worth from ninety cents to one dollar twelve and a half cents. The fur improves with the coldness of the climate ; hence, the farther north the animal is obtained, the more esteemed is the fur. It breeds in the spring, and the female has from four to six young at a birth.

Its northern range is stated by Richardson as about the sixty-eighth degree of latitude.

The Martens have been separated from the Weasels in consequence of the difference which exists in their teeth, habits, length of fur, and the more elongated form of the latter. The ears of the Marten are larger, and more conspicuous ; their fur is longer, and they have fewer teeth by two in each jaw. They seem to form a connecting link between the Mustelidæ and the Canidæ.

Genus Putorius. Cuv.

Generic characters. Dental system ; incisors $\frac{6}{6}$; canines $\frac{1}{1}=\frac{1}{1}$; molars $\frac{4}{5}=\frac{4}{5}$; $= 34$. Body elongated ; legs short ; toes united by a membrane.

1. Putorius vison. The Mink.

Foutereau, *La Hontan*, Voyage, i. p. 81.
Mink, *Kalm.* Jour. Minx, *Lawson.*
Le Vison, *Buffon*, xiii. p. 308, t. 43.
Mustela lutreola, *Foster*, Phil. Trans., lxii. p. 371.
Minx Otter, *Pennant*, Arct. Zool., i. p. 87.
Mustela vison, *Cuvier*, Règne Animal., i. p. 150.
" lutreola, *Sabine*, Franklin's Journ., p. 652.
The Mink, *Godman*, Nat. Hist., i. p. 206.

Specific characters. Dark, glossy brown, above and beneath; fur shortest upon the head, and longest upon the posterior parts of the body; body greatly elongated, especially the neck; legs short; nails white; usually a white spot beneath the chin; ears short, and mostly concealed in the fur.

Description. Head and nose slightly convex; the latter black, obtuse, and extending beyond the chin; ears short, distinctly rounded, and concealed beneath the fur; head small and depressed; eyes small, and placed far forward; neck very long; whole body cylindrical; legs very short; toes connected by a hairy membrane; nails white, shorter than the hair, but not concealed; tail thick at the base, round, and gradually tapering to its extremity; fur short, but dense and thick, intermediate between brown and gray; the lower jaw often tipped with white, and sometimes there are other white spots about the throat and breast; whiskers brown, shorter than the head; two glands situated at the base of the tail, which secretes a fetid liquid that exhales the odor of the skunk and cat combined.

Observations.

	in.	t'ths.
Length of the head and body,	14	6
" " tail,	7	0
" " nose to the shoulder,	5	8
" " incisors to the meatus,	2	0

Skull.

Length from the incisors to the crucial ridge,	2	3
" " " to the foramen magnum over the palate,	2	0
" " " to the meatus,	1	7
Width at the zygomatic arch,	1	3

	in.	t'ths.
Height at the zygomatic arch,	0	8
Length of the lower jaw,	1	3
Width,	1	2

Observations. The legs of the Mink are shorter, in proportion to the size and length of the body, than those of the Weasel. It is intimately related to the Otter in its form, depressed skull, webbed feet, thick tail, and in its habits, &c. It is common in Massachusetts ; it is found in the vicinity of ponds and streams, in and around which it obtains its subsistence. The Mink is easily tamed, if taken young, and is susceptible of forming strong attachments. Its fur is of but little value, on account of its shortness, though it is quite fine. Its value, however, varies with the fashions of the day, and may, therefore, become more marketable than at the present time. It is common throughout the length and breadth of America, or it ranges from the Carolinas to 69° north latitude. It is said to have from four to seven young at a birth.

2. Putorius vulgaris. Cuv. The Weasel.

Mustela vulgaris, *Lin.* *Harlan*, Fauna Am., p. 61.
Mustela (Putorius) vulgaris, *Richardson*, Fauna Bor. Am., p. 45.
Figure; *Godman*, Nat. Hist., i. p. 208.

Specific characters. Reddish-brown above, white beneath, tail short, and of the same color as the body.

Description. The color is uniform through the year, and rather brighter and paler than that of the Stoat in his summer dress. Richardson describes it as yellowish-brown, varying into chesnut-brown, and the under parts as yellowish-white, together with the legs, thighs, and the whole of the chin, and which extends to one half of the upper lip ; tip of the tail blackish-brown.

Dimensions.

	in.	t'ths.
Whole length,	10	8
Head and neck,	2	8
Body,	6	0
Tail including hair,	2	0
Shaft of the bone,	1	7

Observations. There is some doubt in relation to the identity of the European and American Weasel. The tail of the American is evidently shorter than that of the European. In other respects there is a great similarity. It is not so common as the following species, at least in the western part of the State. There is no occasion for mistaking this species for its congener, commonly called the White Weasel, as the latter is always larger, and has a longer tail, which is always terminated with a black pencil of hairs, whereas, in the former, it is always short, and of a uniform color. It feeds upon mice, moles, eggs, chickens, &c. The smallness of the animal fits it better for pursuing mice than larger animals, and hence it may be of great service in barns, and hay and grain ricks, in the destruction of vermin; and hence, too, it should be protected, even if it should occasionally take an egg or a chicken for a change of diet.

3. Putorius Noveboracensis. De Kay. The Ermine Weasel.

Mustela erminea, *Lin. Gmel.* *Harlan*, Fauna Am., p. 62.
Stoat Weasel, *Penn.*, Arct. Zool., i. p. 75.
Mustela (Putorius) erminea, *Richardson*, Fauna Bor. Am., p. 46.
The Ermine Weasel, *Godman*, Nat. Hist., i. p. 193.
Figure; Ibid., p. 213, f. 2.

Specific characters. Reddish-brown above, white beneath; in winter wholly white; slightly tinged with yellow, except the extremity of the tail, which is always black.

Description. The neck, body, and tail long and cylindrical; nose slightly convex; legs short and stout; ears low, rounded, or but slightly pointed, wide at base, standing obliquely to the axis of the head; eyes black, large, and full of animation; mystachial bristles of two kinds; the coarsest, brown at base, and whitish at the extremities, intermixed with a few entirely white; the shortest and finest all white; feet five-toed, the inner one shortest; in the winter covered with glossy hair, concealing the five small terminal tubercles; soles nearly covered with hair; some individuals are more yellow than others on the posterior parts.

Dimensions.

	in.	t'ths.
Length of the head and body, ...	11	0
" of the tail bone, ...	5	4
" of the tail, including the terminal tuft, . .	6	6
" from the nose to the posterior base of the ear,	1	9

Observations. This little animal is one of the most lively and active of any which are known to us. It is common to the Middle and Northern States. It is bold and courageous, and is ready to attack animals larger than itself. It often domesticates itself in cellars and barns, which it speedily clears of rats and mice. It is, however, somewhat prone to mischief, and is not very conscientious in the division of eggs, and of the young poultry; yet it is productive of much good by ridding us of foes whose evils are much greater than the loss of a few eggs, and occasionally a chicken. Formerly the skins were in great demand, especially those taken in higher latitudes, as their fineness and beauty are superior to those of southern or warmer regions. At present they are not considered of so much value as formerly, and they can scarcely be considered as articles of traffic. It is reported that the female produces ten or eleven young at a birth; but I have not had an opportunity of seeing their retreats while breeding, and therefore cannot vouch for its accuracy. The latter remarks apply rather to the true ermine; it is considered as differing specifically from this, though so strongly resembling it, that, without careful attention, it is very likely to be mistaken for it.

Genus Lutra. Storr.

Generic characters. Dental system; incisors $\frac{6}{6}$; canines $\frac{1}{1}=\frac{1}{1}$; molars $\frac{5}{5}=\frac{5}{5}$; = 36. Body elongated and cylindrical; legs short and strong; toes five on the anterior feet, and four on the posterior, and the rudiment of a fifth; webbed; tail depressed, and wide at its insertion.

1. Lutra Canadensis. Sabine. The Otter.

Lutra Canadensis, *Richardson*, Fauna Bor. Am., p. 57.
Mustela Hudsonica, *Lacepède.*
Lutra Brasiliensis, *Harlan*, Fauna Am., p. 72.
The American Otter, *Godman*, Nat. Hist., i. p. 222.
Figure; Ibid., p. 228, f. 2.

Specific characters. Fur glossy brown ; chin and throat dusky white, grayish, or yellowish-brown ; neck and head long ; legs short ; tail pointed, and shorter than the body.

Description. Color dark, glossy brown, pale or whitish about the throat and face ; body long and cylindrical ; neck nearly as thick as the body ; feet with five toes on the anterior feet, and four, with a rudiment of a fifth, on the posterior feet, short, strong, and webbed ; tail depressed at base ; the skull is wide and depressed posteriorly ; muzzle short and wide ; upper lip thick ; eyes small, and placed near together, and far in advance ; ears small, slightly rounded, and partly concealed in fur ; the two last grinders of the upper jaw large, the three others small and crowded ; the last but one largest in the lower jaw ; at the base of the tail there are two oval glandular bodies about the size of a butternut, in which there is a yellowish substance about the thickness of cream, when the animal is dead, which has rather a strong, disagreeable odor, but not so much so as in the Mink ; kidney lobulated ; skin tough ; females smaller than the males.

Dimensions.

	Male.			Female.		
	ft.	in.	t'ths.	ft.	in.	t'ths.
Whole length,	4	0	0	3	5	0
Tail,	1	5	0	1	2	0
Height at the fore legs,				0	8	0
Length of the head,	0	4	5			
Circumference at the middle of the back,	1	7	0			
Length of another female,				3	8	0
Height at the shoulder,				0	9	0
Tail,				1	4	0
From the nose to the meatus,				0	4	0
Skull.						
Length,				0	4	3
Height,				0	1	5
Greatest width of the zygomatic arches,				0	2	5
Length of another old skull,				0	4	0
Width,				0	2	6
Length from the incisors to the meatus,				0	3	0
" " meatus to the other,				0	2	3

Observations. The Otter is still an inhabitant of our waters, but, from its shyness, watchfulness, and aquatic habits, is rarely seen, and still more rarely captured. It lives in holes in the banks of streams, and subsists on fish, as salmon, bull-pouts, clams,* &c., the heads being more of a luxury than the bodies. It is very expert in fishing, moves rapidly in the water, in which it is greatly aided by the extreme mobility of its shoulder joints.

The fur of the Otter ranks next to that of the Beaver in value, being nearly as fine, but not quite so long. It is more valuable in March and April than in the autumn, the fur then having attained its greatest length. In spring, Otter skins of the best quality generally sell for seven dollars, though the price varies with the fashions of the day. From the shortness of its limbs, the Otter is not a swift runner, yet it is difficult to capture it even on the land ; the hide is thick and tough, and defended by a coat of fur, and being a sharp biter, and quite active, the animal repels the attacks of most dogs, unless they have the assistance of their masters. It is rare to find an Otter thin in flesh ; but, though its condition is good, and though it is fat, yet its meat is no great dainty, except to an Esquimaux. Its breeding season is in the spring, or about the middle of April ; it has but one litter annually, and it numbers only two or three young at a birth. The range of the species is wide, but its home seems to be in the colder regions of the North, as Canada and the British Provinces. It travels much, and does not confine itself to one locality, but wanders up and down the streams, as its wants and caprices seem to dictate ; it even travels over mountain ridges to reach some favorite fishing ground, in a route more direct than the windings of rivers. As has been already remarked, it is supplied with two glandular bodies situated at the base of the tail ; these seem to be connected with sexual propensities, and enable the animals to discover their mates, as they are supposed to eject or cast it on stones or weeds, somewhat in the manner of dogs. The hunters call it castor, and employ it to allure them into their traps. The usual method of trapping the Otter, is to seek first

* Unios are so extensively used as food by the Otter and Mink, that they are quite scarce in many places where they formerly abounded.

the banks of clay or snow on the river's side, where they resort for the amusement of sliding. Having found one, they place the trap just under the water, that when the animal plunges in, his fore feet will spring it by striking the pan. This habit of sliding is evidently an indication that it is of a playful disposition, for there can be no other reason for it than amusement. It is susceptible of domestication, and of becoming obedient to a master, and being trained to follow him. It has a whine much resembling the Dog's. The American Otter is distinguished from the European by its greater size, comparatively shorter tail, and a greater uniformity of brown on its inferior parts.

Genus Mephitis. Cuv.

Generic characters. Dental system; incisors $\frac{6}{6}$; canines $\frac{1-1}{1-1}$; molars $\frac{4-4}{5-5}$; = 34. Body elongated; arched; toes free and armed with strong nails, and formed for digging; tail long and bushy.

1. Mephitis Americana. Desm. The Skunk.

Memphitis Americana, *Harlan*, Fauna Am., p. 70.
The Skunk, *Godman*, Nat. Hist., i. p. 213.
Figure; Ibid., p. 213.

Specific characters. Color black, marked with white, longitudinal bands, which vary somewhat in form and extent.

Description. The head of the Skunk is small; eyes small, and placed more laterally than in the true Weasels or Mink; ears short and round; forehead wide. Individuals present a variety of markings; sometimes the white stripes extend from the tip of the nose to the rump; sides of the head and under surface black or blackish-brown; more generally there is an insulated white stripe along the forehead, and a large patch of white covering the whole of the upper part of the neck, from which two white lines bifurcate and extend on the back; tail tipped with long, white, coarse hair, and many such hairs appear on the shaft of the tail, intermixed with the black; nails before very robust; it is provided with odoriferous glands at the root of the tail.

Observations. The general aspect of the Skunk is that of a wicked sort of cunning; he walks along quite deliberately in the

path before you, as if perfectly conscious of his means of defence. His head is small, and carried low, which, in connexion with his thick, arched body, imparts to him the appearance of clumsiness, foreign to the Weasels. The female breeds once a year, and produces four or five at a time. It extends to the north of the great Lakes, but is apparently most abundant in an old settled country.*

ORDER RODENTIA.

Characters of the order. The order is characterized by the presence of two cutting teeth in the form of chisels in each jaw, and which are separated from the molars by a vacant space; canines none; molars have flat crowns, or blunt tubercles; jaws admit of motion backward and forward, rather than laterally; the posterior extremities longest; the number of toes varies according to the species; mammæ variable also in number; stomach simple; intestines long.

FAMILY VIII. CASTORIDÆ. The Beaver Family.

Genus Castor. Lin. Cuv. Geoff.

Generic characters. Dental system; incisors $\frac{2}{2}$; molars $\frac{4}{4}=\frac{4}{4}$; $= 20$. Crowns of the molars flat; toes five, anterior short, the posterior long and palmated; tail broad, thick, depressed, or flatted horizontally, of an oval form, naked, and covered with scales.

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* In the methodical arrangement of the species comprising the animal kingdom, there are two families which should be placed there, the Phocidæ and the Trichechidæ, commonly known as Seals. Of the first, there are probably two genera, as at present constituted, the *Calocephalus*, and the *Stemmatopus;* of the last family, only one genus, viz. *Trichechus*, which may be an occasional visitant to the coast.

In relation to the seals, it is proper to remark, that I have but little personal knowledge, my information being derived from books. I deemed it inexpedient, therefore, to furnish any matter for this Report, to which I was unable to add something from my own observation. I have, therefore, omitted the usual descriptions, and shall pass at once to the next order.

Castor fiber. Lin. The Beaver.

Castor Fiber, *Harlan*, p. 122.
The Beaver, *Godman*, Nat. Hist., ii. p. 21.
Castor Fiber Americanus, *Richardson*, p. 105.
Figure; *Godman*, ii. p. 21.

Specific characters. The fur consists of two sorts of hair, one coarse and brownish, the other downy, more or less gray.

Description. The head of the Beaver is rather large, with a short and blunt snout; the upper lip is divided; eyes and ears small; body thick; the fore limbs somewhat stouter than the posterior; feet five-toed, the membrane forming the web broader on the posterior than on the anterior feet; middle toe longest, all armed with strong nails, fit for burrowing; tail flattened transversely, oval, broad, and covered at base with thick fur, the remainder covered with scales. Incisors yellow in front, strong, and furnished with a single plate of enamel; the upper stand at right angles to the axis of the jaw; molar teeth of the upper jaw directed backwards and outwards; each tooth upon the inside presents a distinct longitudinal groove, formed by the folding of the enamel upon itself, and which divides it into two nearly equal parts; on the outside, the two middle teeth present two indistinct grooves, and the extremes are merely striated; the lower molars are directed forward and inwards; the outside presents a strong groove dividing it into two parts by the folding of the enamel, while, upon the inside, there are three rather distinct grooves formed in the same manner by the enamel, but less distinct than the single outside groove. When the tooth is worn down, the enamel upon the inside presents three foldings upon itself, but on the outside, only one; the middle folding is the shortest, and the point of flexure is a little in advance of the one from the outside, in the first tooth, which is always less worn than the others, in which the middle foldings stand face to face. In the upper molars the inside groove throws the smallest division of the tooth to the anterior side, and the posterior half has one general fold of enamel, which embraces two foldings from the outside, an arrangement the reverse of that in the molars of the lower jaw; the inferior

grinders wear away most behind, the front remaining the longest; but the whole presents a concave, while in the upper jaw, the wearing produces a uniform convex surface.

Dimensions.

(Measurements taken from an old female skull.)

	in.	t'ths.
Length of the lower jaw over the palatine bones,	4	5
" from the nasal bones to the crucial ridge,	4	9
" " end of the incisors to the nasal bones,	1	6
Width at the arches,	3	5
Length from the incisors to the meatus,	4	0
" of the molars above the sockets,	0	5
" from the incisors to the base of the molars,	1	8
" " base of the first molar to the foramen magnum,	2	5
" of the space occupied by the upper molars,	1	½
Width from outside of the posterior grinder to the other,	1	3
Height of the skull at the insertion of the molars,	2	0
Breadth of the skull at the base of the processes of the meatus,	2	4

Observations. This remarkable animal is probably driven entirely from the bounds of Massachusetts. It has become, like some other animals, extinct, and is known only in historical records as having formerly been a tenant of our waters.

There is but little doubt, that all the larger streams, as the Connecticut, the Hoosic, Housatonic, and Merrimack, as well as some of the lakes, were more or less frequented by this animal. The principal circumstance on which our evidence of the fact rests, is the frequent occurrence of such names as these, the Beaver-Dam, Beaver-Meadow, Beaver-Lake, Beaver-Falls, &c.

I shall not enter largely into the history of the Beaver, though volumes have been written on its sagacity and remarkable intelligence, from which it would seem that the authors could not say too much in its praise, nor relate stories too wonderful to be believed, or too fictitious to satisfy the curiosity of the credulous.

That it possesses a degree of sagacity above some animals, is, perhaps, not too wonderful to be believed; but it is probable that all the curious stories have arisen from the circumstance of its being a quadruped endowed with the instinct of accommodating itself to circumstances, and of providing for itself a curious habitation. What is this more than that possessed by the Squirrel, who builds

his nest in the tree-top in the summer when the leaves are thick, and serve to conceal his habitation, but, as soon as the leaves fall, betakes itself to a more secure retreat in the hollow trunk?

The Beaver is a social animal, and dwells, when undisturbed, in a community. Individuals labor together for the common welfare to a certain extent, each pair, however, preparing their own habitation. The houses are made of sticks, mud, and stones, mixed up together without order. These the Beaver carries, stones, sticks, &c., by holding them with his fore paws against his throat and breast. The work is always performed in the night, and carried on with celerity and despatch. The door leading to the hut is always on the side farthest from the land, and is placed deep in the water, and near the foundation of the house.

Perhaps one of the most remarkable facts in the history of the Beaver is its ability to accommodate itself to circumstances. Thus, when it is frequently disturbed, it ceases to build dams or houses, and takes up its abode in the banks of streams. This, however, is not singular, nor confined to the Beaver. Other animals, also, are driven to this alternative, and accommodate themselves to a course which seems at first view constrained and unnatural.

In its travels from place to place, it is extremely cautious and wary, and guards against detection; and, were it not obliged to satisfy the calls of nature by cutting down small trees, it would ordinarily escape the vigilance of the hunter.

It feeds on the willow, birch, poplar, and alder, and but rarely on any of the pine tribe; also upon the roots of the nuphar, which grow at the bottom of lakes, ponds, and rivers.

The Beaver produces from two to five young at a litter. Young Beavers are said to be playful, and to imitate both in their action and voice the gambols of children.

The Beaver is susceptible of domestication, and becomes a great pet, and extremely fond of being handled. It is said, that, in this state, they still preserve some of their instincts; for, on the approach of a storm, they will uniformly cut the furniture of the room, such as chair-posts, &c., and lay the foundation of a dam. The sticks which they thus cut, are usually placed against some open space, as a door, or laid across the corner of the room.

Though the Beaver, in its savage state, subsists entirely on vegetables, as bark and roots, yet, when tamed, it does not refuse meat.

Genus Fiber. Cuv. Geoff.

Generic characters. Dental system; incisors $\frac{2}{2}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{3}{3}=\frac{3}{3}$; = 16. Molars with a flat crown and zigzag plates of enamel; fore feet with four toes, and the rudiment of a thumb; posterior with five, edged with stiff and coarse bristles; tail long, compressed laterally; naked, except a few scattering hairs, somewhat granulated.

1. Fiber Zibethicus. Desm. Muskrat.

Mus Zibethicus, *Lin.*, Turton's, p. 79.
Fiber Zibethicus, *Harlan*, Fauna Am., p. 132. *Richardson*, Fauna Bor. Am., p. 115.
Musk-Rat, *Godman*, Nat. Hist., ii. p. 58.
Figure; Ibid., p. 21.

Fur clear brown, tinged with red above, cinereous beneath.

Description. Body thick, and somewhat oval; neck short; ears short and partially concealed in a dense fur, and about as wide as high; eyes small, mystachial bristles numerous; tail long, somewhat linear, naked, compressed laterally, and slightly curved.

Observations. This animal is still numerous in our marshes and mill-ponds, though it is hunted with a good deal of avidity. It makes holes or burrows in the banks, and sometimes builds houses with some ingenuity in the marshes, which appear like little hillocks. From these habitations it may be driven by being disturbed, and makes its escape by plunging into the water. The fur of the Muskrat is quite fine, and is used in various ways. In August, it is sometimes preserved on account of its pale color. It is not till November that it is good, and it is still more valuable in the spring.

FAMILY IX. LEPORIDÆ. The Hare Family.

Characters of the family. The family of the Leporidæ is considered by naturalists as the best defined group of beings in the

animal kingdom. It is distinguished from every other by well marked characters, whether we consider its habits or configuration. The great length of the ears, the prominence of the eyes, the length of the posterior extremities, and the shortness of the tail, are characters which are obvious at the first glance, and which are so prominent, that they may be considered as family features sufficiently common to distinguish the whole group. Besides, being, as it were, unarmed, their instinct of escaping their foes by flight may be considered common to the whole race.

The heads of the individuals belonging to this family, are narrow, or compressed, which arises from the straightness of the zygomatic arches, which, in the Carnivora, swell outwards, and help to extend the width of the cranium immediately in advance of, and above the insertion of the ear. The head, too, is comparatively long, though not terminated by an acute or extended snout. The eyes are prominent, and placed laterally ; the ears are planted apparently near each other ; the bony process of the meatus externus is directed upward and backward, a direction almost the reverse of some of the pugnacious animals, as the Weasels. This circumstance, connected with its size, may be ranked as a remarkable adaptation, in which organization and instinctive properties blend and harmoniously combine. The external ear, as has already been remarked, is very large ; it is elastic also, and very movable, and its position during its ordinary pursuits, as feeding, tending its young, &c., is directed backwards on the line with the bony canal, which opens downwards and forwards. This canal is comparatively long, and serves thereby to increase the strength of the vibrations of the air ; a whisper, the snap of a stick, the rustling of the leaves, is heard at a distance to give timely warning of danger from behind, while the prominent eye, quite lateral as to position, perceives in time the approach of an enemy before. Thus it is, that nature has taken care that this unprotected race should not be left to the mercy of implacable enemies, without guarding it almost as effectually as the less powerful of the Carnivora.

Genus Lepus. Lin.

Generic characters. Dental system ; incisors $\frac{4}{2}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{1}{1}\frac{2}{0}$; = 28. Grinders flat, with the plates of enamel transverse ; tail short.

1. Lepus Americanus. Erxl. American Hare.

Lepus Hudsonius, *Pallas*, Glires, p. 30, An. 1778.
American Hare, *Foster*, Phil. Trans., lxii. p. 376. *Pennant*, Arct. Zool., i. p. 90. *Hearne*, Journ., p. 384. *Godman*, Nat. Hist., ii. p. 157.
Lepus Americanus, *Sabine*, Franklin's Journ. p. 664. *Richardson*, App. Parry's 2d Voyage, p. 324, and Fauna Bor. Am., p. 217. *Harlan*, Fauna, p. 192.

Specific characters. Head, body, and upper side of the tail, brown ; ears shorter than the head, the upper portion bordered in the winter on the outside by a dark brown edge, internally pale, and nearly naked in summer ; tail white beneath.

Description. The dress of this animal varies but little during the year. Along the back, the brown is darker during the winter, and there is also a greater predominance of black shining hairs ; the general color of the head, rump, and sides, is paler, or a yellowish or grayish-brown ; belly, sides, and thighs, white, with a slight tinge of yellowish ; chin yellowish white, the lower portion grayish ; the upper portion of the tail yellowish-brown ; the darker portions of the back arranged somewhat in lines ; ears edged with blackish, but this does not extend to the base at the posterior margin ; fur plumbeous for two thirds of its length, then dull yellowish-brown ; the intermixed coarse hairs are whitish at their roots, then black, and then whitish, or slightly tinged with brown, terminating in a glossy black ; the fur of the belly is plumbeous near the skin, and terminated with white ; general color of the legs yellowish-brown ; mystachial bristles black at base, and terminated usually with brown, in addition to which, there are three or four black, stiff hairs over the eyes ; around the eyes, also, there is a circle of yellowish-white ; nails brownish, nearly straight, five upon the fore, and four upon the hind feet ; incisors white, linear, external surface grooved near the inner mar-

gins, inferior flat on the external surfaces, and slightly grooved on the internal, which are considerably narrower; cutting surfaces oblique, and ground down like a chisel.

Dimensions.

	ft.	in.	t'ths.
Length of the head and body,	1	1	0
Head,	0	3	5
Tail,	0	1	5
Ears behind,	0	2	2
Middle claw of the fore foot,	0	0	3
" " " hind foot,	0	0	4½
Height at the fore legs,	0	7	0
Skull.			
From the incisors to the occipital spine,	0	3	2½
From the incisors to the foramen magnum,	0	2	3
" " " meatus externus,	0	2	4
Height,	0	1	2
Width at the zygomatic arches,	0	1	5
Length of the lower jaw,	0	2	3

Observations. The American Rabbit, as it is sometimes called, exhibits more of the habits of the English animal of this name, than either of the other species peculiar to this country. Thus, when pursued, it flies to a hole for shelter, and, though it does not burrow, it seeks some excavation, shallow, it is true, for the rearing of its young. Its color scarcely changes in this climate. Those in the neighbourhood of Williamstown are of a beautiful glossy brown during the winter. I have, however, seen individuals which were distinctly gray during winter in the mountain towns of Hampshire County. These were always confined to swamps, though it would be perhaps safer to make the remark in qualified terms, as my observations are too limited to be made a general expression. I have thought it possible that we might have two species of small hares, one of which is confined mostly to wet and low places, and changes its coat in winter from brown to gray. The suggestion is made for the purpose of exciting inquiry. I have not been able to procure one of the gray varieties, since engaged in this work.

2. Lepus Virginianus. Harlan. Prairie Hare.

Lepus Virginianus, *Harlan*, Fauna Am., p. 196. *Richardson*, Fauna Bor. Am., p. 224.

The Varying Hare, *Godman*, Nat. Hist., ii. p. 163.

Specific characters. Color of the summer dress on the upper parts, dark umber-brown, of the winter, white ; ears shorter than the head ; ends and margins mixed with white and blackish-brown ; tail white beneath.

Description. In winter, the dress consists of a long coat of fine fur, which, when lying smooth, is a pure white ; if it is ruffled, the wood-brown appears beneath. The ears are more or less mottled with oblong, brown, and yellowish-brown spots, which are more numerous on the anterior than on the posterior side, and which extend quite down to the insertion ; they are also bordered with blackish-brown one third of the distance to the base, slightly intermixed with yellow-brown ; the inside is white, with a tinge of yellow ; the mystachial bristles are black at base, and terminated with white, or black throughout ; there are four or five stiff, black hairs above the eyelids, and many beneath the chin ; the fur on the back is plumbeous at base, then wood-brown, and lastly snow-white ; there are also interspersed many hairs, which are strong and white their whole length ; on the throat it is paler, while on the head it is darker, but on the belly white ; the arrangement of the colors of the tail is the same as on the other parts, but less conspicuous ; upon the outer portion of the extremities it is the same as on the back, while on the inner, it is like that of the belly. Nails narrow, nearly straight, hind one broader and longer than those before. In the summer, the color of the dress on the upper parts is dark umber-brown, which arises partly from an intermixture of black, shining hairs ; the fur at the roots is the same as in winter, but towards the extremity, tinged with yellowish-brown and black ; under jaw smoke gray ; a white circle surrounds each eye, but the margin of the eyelids is dark-brown as in winter ; the white color commences between the fore legs, and extends over the belly, and predominates on the extremities ; the sides present a dull, pale yellowish-brown, in the midst of which there are scattered black hairs ; the ears are nearly naked in sum-

mer, but the fur remains on the margins, of a mixed white and blackish-brown, the latter prevailing at the tips ; the tail is white beneath ; on its upper surface, the gray and brown colors appear through the white ; mystachial bristles as in winter.

Dimensions.

	ft.	in.	t'ths.
Length of the head and body,	1	7	0
" from the nose to the middle claw,	2	3	5
" of the head,	0	4	3
" from the nose to the insertion of the ear,	0	3	5
" " " ears posteriorly,	0	3	5
" of the three inside nails of the hind feet,	0	0	5
Tail,	0	1	5
Skull.			
From the insertion of the incisors to the occipital spine,	0	4	6½
" " " " foramen magnum,	0	2	6½
" " " " meatus externus,	0	2	9
Width,	0	1	7
Height,	0	1	4

Observations. Godman, in his "Natural History," gives the length of this animal as 14 inches, while Richardson, in his "Northern Zoology," gives it as 19 inches. The specimen before me is 16 inches. There is, therefore, some variation, probably, in full grown individuals, which depends on climate, food, &c. The skull of my specimen is longer and larger than the one measured by Richardson. This species is common throughout the New England States, and is known generally as the White Rabbit. It is found, however, far to the north, as at Fort Enterprise on McKenzie's River, in latitude 68°. As food, it is usually esteemed. It is taken in snares and traps set in its paths, into which it is often driven by hounds. The fur is not much esteemed. The limbs of Rabbits and Hares are so constructed, that their movements are almost necessarily in leaps or bounds.

FAMILY X. MURIDÆ. The Rat Family.

Genus Arvicola. Desm. Mus. Lin.

Generic characters. Dental system ; incisors $\frac{2}{2}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{3}{3}=\frac{3}{3}$; = 16 ; deeply grooved externally. Muzzle obtuse ; tail round and hairy, shorter than the body.

1. Arvicola hirsutus.

Color of the head and body above, tawny brown, beneath, ash-gray ; tail less than half the length of the body, thinly covered with hair.

Description. Fur beneath bluish-black, the extremities of most of the hairs are reddish, and hence give it somewhat of a tawny or reddish appearance ; these are intermixed with a few which are entirely black ; the color of the fur upon the belly the same as above, though the hairs are light, or ash-gray ; the nose is obtuse, and surrounded by numerous dark-brown mystachial bristles ; incisors yellow ; fore feet short ; the three middle nails of the posterior feet, and the two middle ones of the anterior, longest, and nearly of equal length ; external ears rather large, and partly concealed in the fur, broad at base, and rounded ; tail obscurely ringed and tapering.

Dimensions.

	in.	t'ths.
Whole length, ...	6	5
Tail, ...	1	7½

Observations. The Meadow Mouse makes its burrows in banks of soft earth, under stones and stone heaps, from which there are well-trod paths diverging in all directions. It is a vegetable feeder, and subsists on seeds, grains, nuts, &c. It is injurious by feeding upon the roots of vegetables, and in hay ricks, by cutting up the dried hay into mere fragments, and rendering it entirely unfit for the use of cattle. It has a great many enemies, but, notwithstanding, by its excessive multiplication, it is scarcely diminished in numbers.

This species seems to be more uniformly colored than others of this genus, the lighter color beneath being confined to a comparatively small portion of the belly, and is never white.

2. Arvicola albo-rufescens. Nobis.

Specific characters. Fur entirely white ; hairs at the extremities pale yellowish-brown ; white beneath ; upon the belly and chin paler than above.

Dimensions.

	in.	t'ths.
Whole length, ...	5	1
Tail, ...	1	5

Observations. This species differs from the preceding in color. It is far less common. I have met with only two individuals. These were discovered in Williamstown, four years since. That it is not an albino, is rendered probable by the color of its eyes, which were black, and that it is not an accidental variety, is also probable from the fact, that the two individuals belonged to the same nest. The size appears to be less than the common Field Mouse.

3. Arvicola Emmonsii. De Kay.

Specific characters. Color brown above, which extends along the tail in the form of a rather wide line ; white beneath, including the feet ; hind legs longer and more robust than the fore legs ; tail a little longer than the body.

Description. Head rather large and obtuse ; ears roundish ; naked on the upper border on both sides ; tongue smooth ; incisors without grooves ; molars tuberculated, the first in each jaw the largest, diminishing in size to the last, which, when worn, present a circular disc, but almost without tubercles ; four toes on the fore feet, with a rudiment of a thumb, but without a nail ; five on the hind feet ; nails concealed in the white hair ; hind legs the longest ; tail tapering, hairy ; mystachial bristles numerous, some of which are black or dark-brown for one half their length, the remainder grayish or whitish ; color brown above ; darker along the back than the sides ; the former color extends along the upper side of the tail in the form of a stripe, and occupies about one third of its circumference ; nose also brown, the upper part like the back ; the brownish extends to the heel joint behind ; white beneath, including also the feet, nostrils, the front and back part of the fore legs, and extending along the sides to the thighs, which are also white on the front and back parts, and running to the extremity of the tail ; feet all white, which gives a very clean and neat appearance to the animal ; line dividing the brown from the white well defined ; fur bluish-black on all those parts which are brown.

Dimensions.

	in.	t'ths.
Whole length,	6	0
Head, from the nose to the ears,	1	0
Tail,	2	5
Longest of the whiskers,	1	5

Observations. This beautiful animal inhabits meadows and wooded places. It is often seen in fields recently mowed, and is known by the name of Deer Mouse, in which is also included the Gerbillus or Jumping Mouse. Our animal, though it leaps well, yet cannot take such long and rapid strides as the true Jumping Mouse. It is, however, quite active, and difficult to capture. It is probably native, and originally inhabited woods and woody places, but has now taken up its abode in places where grain and seeds of grass are plentiful. It appears to be the connecting link between the Arvicola and Gerbillus, having quite a long tail, and stout posterior extremities.

Genus Mus. Lin.

Generic characters. Dental system; incisors $\frac{2}{2}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{3}{3}=\frac{3}{3}$; = 16; grinders simple, with tubercular summits; superior incisive teeth wedge-shaped; inferior compressed and pointed. Tail nearly naked, annulated with scales.

1. Mus musculus. Lin. The Common Mouse.

Common Mouse, *Pennant*, Brit. Zool., i. p. 122.
Mus domesticus vulgaris, minor, *Ray*.
The Common Mouse, *Godman*, Nat. Hist., ii. p. 84.

Specific characters. Fur brownish ash above, light ash beneath; tail rather shorter than the body; ears about half the length of the head.

Description. Head tapering; muzzle acute; ears rounded; ears, feet, and tail clothed with only a small quantity of hair; eyes prominent and bright; whiskers numerous, extending in graceful lines around the head. It has four digits on its anterior feet, and a rudimental thumb destitute of a claw; on the hind feet there are five.

Observations. This animal is not a native of this country, but is supposed to have been introduced. Though a beautiful little animal, still it is not regarded with much favor; the unpleasant odor produced where it resides, serving to produce a strong prejudice and disgust.

2. Mus rattus. Lin. Black Rat.

Mus domesticus major, *Ray.*
Black Rat, *Pennant*, Zool., i. p. 113. *Harlan*, Fauna Am., p. 148. *Godman*, Nat. Hist., ii. p. 83.

Specific characters. Grayish-black above, ash beneath; ears half the length of the head; tail longer than the body.

Description. Head elongated; muzzle tapering; mystachial bristles numerous; upper jaw projects beyond the lower, which is remarkably short; tongue smooth; ears rounded, simple, naked, and half as long as the head; eyes large and projecting, though not remarkably so; feet plantigrade; five toes on each foot, concealed in the skin, excepting the terminal joint and claw; tail longer than the body, almost destitute of hair, but covered with rings of scales; color of the upper parts grayish-black; of the lower, dull ash; feet and tail dusky.

Observations. The Black Rat is supposed by many to have been introduced into this country from Europe. Others, however, are undecided as it regards this question. It was once more numerous than it is at present. This animal I found quite numerous a few years since about an old mill in Williamstown, which is the only place in which I have met with it. It is supposed to have been extirpated, or driven away from its former residences by the Brown or Norway Rat.

3. Mus decumanus. Pallas. Brown Rat.

Mus Norwegicus, *Brisson*, Reg. An., p. 173. *Erxl.*, Syst., p. 381.
Norway Rat, *Pennant*, Brit. Zool., i. p. 115.
The Common, Brown, or Norway Rat, *Godman*, Nat. Hist., ii. p. 78.

Specific characters. Color of the upper parts grayish-brown, with a tawny tint; dirty white beneath; ears and muzzle nearly

naked; tail ringed and scaly, each scale having a small hair growing from beneath it.

Description. The muzzle is less tapering than in the preceding species. The tail has about 180 rings formed by the scales.

Dimensions.

	in.	t'ths.
Length of the head and body,	10	8
Head,	2	0
Ear,	0	8
Tail,	8	2

Observations. The habits of the two preceding species of Rats are quite similar; they feed on every thing of household consumption, and frequently make great havoc in cellars, fields of corn, and granaries. They are fond of meat, and will frequently destroy large quantities of pork. Their depredations do not end here, as they destroy eggs and young poultry. They are bold and furious when attacked by man or dog, and fly at either with fury when so confined that escape is hopeless. They breed several times annually, and produce from ten to fourteen at a litter. Much might be said of this bold and mischievous animal; but it is sufficient to remark, that it is an annoying plague, whose extirpation is universally sought, but which cannot be effected, in consequence of its cunning, and great fecundity. The best method of destroying it is to mix plaster of Paris largely with meal, which it will eat, and which, by hardening in its stomach and intestines, produces death in a short time.

Genus Arctomys. Desm.

Generic characters. Dental system; incisors $\frac{2}{2}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{5}{4}=\frac{5}{4}$; = 22. Head somewhat triangular; ears as wide as long; eyes small; feet robust; tail half the length of the body.

1. Arctomys monax. Gmel. The Marmot. The Woodchuck.

Mus monax, *Lin.*

Ground Hog, *Harlan*, Fauna Am., p. 158.

The Maryland Marmot, *Penn.*, Synop. 27; Quad., ii. 398. *Godman*, Nat. Hist., ii. p. 100.

Figure (poor); Griffith's *Cuvier*, iii. 170.

Specific characters. Fur rusty-brown ; hair grayish at the tips ; face pale bluish-ash ; ears short and broad ; fore feet four-toed, those behind have five ; tail black, somewhat bushy.

Description. Body thick ; the general color is a rusty brown ; the tail and feet black ; ears rounded, and broad at base, placed high up and far back on the head, provided with a muscular apparatus for bringing down the upper portion over the orifice, bordered with grayish anteriorly ; tail somewhat bushy at the extremity, and black or very dark-brown ; mystachial bristles black ; the fore feet have only four toes with the rudiment of a fifth ; legs robust and strong ; nails long, curved, sharp, and brown, and fitted for burrowing ; stronger before than behind.

Observations. This interesting animal is one of the most common in New England. It is vigilant, and though not very active, still it is almost impossible to surprise and take it at a distance from the burrow. It is perfectly cleanly in all its habits, is susceptible of domestication, and becomes a very agreeable pet. It is well known to hybernate. It goes into winter quarters some time in October, unless the weather is quite mild, and the means of subsistence plentiful ; it is then very fat. Its sense of hearing is extremely acute, and hence it is so rarely surprised away from home, as the least noise, when it is collecting the materials for its nest, or feeding, is timely perceived, so that it escapes while the suspicious object is at a distance.

Genus Sciurus. Lin. The Squirrel.

Generic characters. Dental system ; incisors $\frac{2}{2}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{5}{4}=\frac{5}{4}$; $= 22$. Body elongated ; upper lip divided ; posterior extremities longer than the anterior ; upper incisive teeth chisel-shaped ; lower pointed ; molars tuberculated ; feet five-toed ; tail long, bushy, with the hairs directed laterally.

1. Sciurus leucotis. Gappar. Common, or Little Gray Squirrel.

Sciurus cinereus, *Harlan*, Fauna Am., p. 173.
The Common Gray Squirrel, *Godman*, Nat. Hist., ii. p. 131.
Figure; Ibid., p. 133, f. 2.

Specific characters. Color fine bluish-gray, varying somewhat in kind and degree; on some parts, as on the head and along the sides, there is a yellow or golden hue intermixed with the general color; this yellowness is quite obvious where the white hair of the belly approaches the gray of the sides, and also on the anterior part of the fore, and superior part of the hind feet.

Description. Without entering into a detailed description of this common species, I shall barely remark upon the skull and teeth. Incisors yellow externally, convex outwardly; upper, slightly grooved, and nearly if not quite uniform in width from their insertion to their points; the lower become narrower towards their points; in the upper jaw there are four true molars, and a rudiment of the fifth placed towards the inside of the first true molar; it is a mere conical peg inserted into the jaw, which probably falls out in early life.

Dimensions.

	in.	t'ths.
Length from the extreme of the nasal bones to the occipital spine,	2	7
" from the incisor to the meatus, ...	1	7½

2. Sciurus vulpinus. Gmel. The Gray Squirrel. Fox Squirrel.

The Fox Squirrel, *Godman*, Nat. Hist., ii. p. 128.

Specific characters. Color varies from white to pale-gray and black; various shades of red, mottled, &c.; generally larger than the preceding.

Observations. This Squirrel presents so many variations of color, especially in a more southern latitude, that many individuals have mistaken it for two or three distinct species. It is not very common in the woods of Massachusetts; the black, or tawny

black, variety is the most common ; the mottled varieties I have never met with. Some individuals which were tawny upon the belly, and gray, I have repeatedly seen. The flesh is not so sweet as that of the common gray variety ; it is usually red, and not so white as in the former species. The body is about fourteen inches in length, the tail sixteen ; ears quite hairy inside and out, and not so high as in the former species.

3. Sciurus niger. Lin. The Black Squirrel.

Black Squirrel, *Pennant*, Arct. Zool., i. 138.
Sciurus niger, *Harlan*, Fauna Am., p. 177. *Richardson*, Fauna Bor. Am., p. 191.
The Black Squirrel, *Godman*, Nat. Hist., ii. p. 133.
Figure ; Ibid., p. 138, f. 3.

Specific characters. Color jet black, with a fine, short, glossy pelage, with but a small quantity of intermixed gray ; on the belly there is a prevalence of reddish-brown ; in the summer the black is not so pure as in winter.

Observations. The Black Squirrel rarely varies much in its color. It may be distinguished from the black varieties of the other species, by the pureness of the black, which in the mere varieties of the other species partakes largely of the brown and reddish hues, and also by the softness and fineness of the hair. It is far less common in the western part of Massachusetts than the Gray Squirrel, and, indeed, it is very rare to meet with one.

4. Sciurus Hudsonius. Gmel. The Common Red Squirrel. Chickaree.

Sciurus Hudsonius, *Harlan*, Fauna Am., p. 185. *Richardson*, Fauna Bor. Am., p. 187.
The Hudson's Bay Squirrel, *Godman*, Nat. Hist., ii. p. 138.
Figure ; Ibid., p. 133, f. 1.

Specific characters. Superior parts of the body reddish brown, varying in intensity, and shaded with black ; inferior, white, tarnished more or less with reddish yellow ; longitudinal line between the white and red somewhat darker than the back ; ears tufted.

Description. The under part of the head and front of the fore limbs are reddish-brown, like the back; the insides of the thighs are colored like the belly, and on each side, or on the flanks, there is a blackish line; the tail is of a reddish-brown color above; mystachial bristles long and black. It resembles the common Red Squirrel, or Sciurus vulgaris, of Europe, more than any species which we have. The range of the species is much farther to the north than either of the preceding. They are subject to a disease of the incisive teeth, in the progress of which they grow to an excessive length. All the Rodentia appear also subject to the same misfortune.

5. Sciurus Striatus. Klein. The Striped Squirrel.

Sciurus Carolinensis, *Brisson*, Reg. An. 155, No. 9.
Sciurus Lysteri, *Ray*.
Sciurus striatus, *Harlan*, Fauna Am., p. 183.
The Ground Squirrel, *Godman*, Nat. Hist., ii. p. 142.
Sciurus (Tamias) Lysteri, *Richardson*, Fauna Bor. Am., p. 181.
Figure; *Godman*, ii. p. 143, f. 3. *Richardson*, p. 181.

Specific characters. Striped with five parallel and longitudinal black lines; the two lateral ones separated from each other by a white line; white beneath; eyelids bordered with white, which runs back a little towards the ear, in which there is a touch of black running in the same direction.

Description. The general color inclines to reddish rather than brown; the lines are obscurely bordered with red; the white beneath extends down the fore legs behind; the sides of the body are paler, and inclining to yellowish; tail gray, the proportion of black greatest, and with a tendency to form a lateral stripe, red at base, sub-ancipital; ears are proportionally high and rounded.

Dimensions.

	in.	t'ths.
Whole length, ...	6	0
Tail, ...	3	8

Observations. This common little animal lives entirely under ground or in hollow logs. It very rarely ascends trees in search

of fruit, nuts, &c., but seeks them on the ground, and lays up an abundant store. It ascends trees to conceal itself when pursued, if no other way of escape presents itself; but, if alarmed, it escapes from its place of refuge at all hazards, with an instinctive knowledge, that the place of greatest safety is its burrow. It does considerable injury to corn fields when the plant is just out of the ground, by destroying the kernel.

Genus Pteromys. Illiger.

Generic characters. Dental system; incisors $\frac{2}{2}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{5}{4}=\frac{5}{4}$; = 22. Skin of the sides extended between the anterior and posterior extremities, so as to form a sail; tail moderate, flattened, and distichous; anterior feet four-toed, posterior five-toed.

1. Pteromys volucella. Lin. The Flying Squirrel.

Pteromys volucella, *Harlan*, Fauna Am., p. 187.
The Common Flying Squirrel, *Godman*, Nat. Hist., ii. p. 146.
Figure; Ibid., p. 143, f. 1.

Specific characters. Color brownish-ash; the under parts of the body white, with a yellowish margin where the color of the back and belly approach each other; the four toes of the anterior feet nearly equal; the four of the posterior feet are also equal, or nearly so, while the fifth or outside one is shortest.

Description. Some individuals are darker than others, and the upper side of the tail is fawn-colored; the ears are large, thin, and rounded, nearly naked; mystachial bristles numerous; eyes black and prominent. This animal is about five inches in length, and the tail three and a half, or nearly four. It is common throughout the States, is nocturnal in its habits, and may be tamed. It has a fine, soft, beautiful fur, more so than either of the species of Squirrels. It builds its nest generally in hollow stumps or trees, and sometimes in thick brush-wood.

Genus Gerbillus. Desm.

Generic characters. Dental system; incisors $\frac{2}{2}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{3}{3}=\frac{3}{3}$; = 16. Anterior extremities short; posterior long,

and formed for jumping ; the former four-toed, and the latter five-toed ; tail long, round, and covered with hair.

1. Gerbillus Canadensis. Desm. The Jumping Mouse.

Dipus Canadensis, *Davies*, Lin. Trans., iv. p. 155.
Dipus Americanus, *Barton*, Am. Phil. Trans., iv. p. 114.
Gerbillus Canadensis, *Harlan*, Fauna Am., p. 155.
The Jumping Mouse, *Godman*, Nat. Hist., ii. p. 94.
Figure ; Ibid., p. 93, f. 1 and 2.

Specific characters. Head, back, and upper parts of the body reddish-brown ; the under parts, and inside of the limbs yellowish-white, or cream-colored ; tail longer than the body.

Description. The size of this animal is nearly the same as that of the common Mouse ; the color on the back is a darker brown than elsewhere ; near the lower part of the nostrils there is a band, or yellowish streak, extending the whole length of the head, and the superior and inferior side of the fore limbs ; it passes also along the body, and terminates at the joint of the thighs ; the upper jaw projects beyond the lower ; ears not large, oval and hairy ; mystachial bristles numerous and long ; on the posterior extremities the distance from the heel to the toes is great ; the three middle toes are nearly equal in length ; the inner one shortest ; the tail is much longer than the body ; upper sides slate-brown, beneath yellowish cream-color, and terminated with a pencil of hairs.

FAMILY XI. HYSTRICIDÆ. The Porcupine Family.

Genus Hystrix. Lin.

Generic characters. Dental system ; incisors $\frac{2}{2}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{4}{4}=\frac{4}{4}$; $= 20$. Body thick, and covered partly with spines, coarse hair, and fur ; four feet four-toed, and hind feet five-toed ; tail prehensile.

1. Hystrix dorsata. Lin. Gmel. The Porcupine.

Hystrix Hudsonius, *Briss.*, 128.
Hystrix dorsata, *Harlan*, Fauna Am., p. 190.
The Canada Porcupine, *Godman*, Nat. Hist., ii. p. 150.
Hystrix pilosus, *Richardson*, Fauna Bor. Am., p. 214.
Figure; *Godman*, ii. p. 150, f. 2. Griffith's *Cuvier*, iii. p. 206.

Specific characters. Color black; body covered with coarse hair, intermingled with pointed spines, whose shafts are white, but their ends or tips are black; tail thick, prehensile, and ancipital; nails long, and moderately curved.

Description. The general color is somewhat various; it is black, or brownish black; limbs robust; quills upon the head and extremities short and stiff; those upon the back long; many short ones intermingled with the hair all over the animal; neck thick, belly large, and limbs nearly equal in length; nose obtuse; molar teeth of the upper jaw inclining outwards; those of the lower inwards; each set or line standing in an angular direction; crowns flat; each molar of the upper jaw presents a single sulcus on the inside, deeper and more strongly marked in the first and last; the outside presents three sulci separated by double lines of enamel, or a plate of enamel folded on itself; the lower molars resemble the upper, except that the arrangement of the sulci is reversed, the single deep sulcus appearing on the outside, and the three which constitute the principal grinding surface, on the inside; there are no lateral grooves as in the teeth of the Beaver; the grinders wear posteriorly, the jaw admitting of motion principally from before, backwards, or the reverse.

Dimensions.

	ft.	in.	t'ths.
Whole length,	2	2	0
Tail,	0	7	5
Height of the back,	1	2	0
Skull.			
Length from the nasal to the occipital spine,	0	3	9
From the insertion of the incisors to the foramen magnum,	0	3	8
Height of the upper jaw,	0	1	6
Width of the top of the skull over the eyes,	0	1	4
Longest spines,	0	2	5

Observations. The Porcupine is a sluggish animal, passing much of its time in sleep. It is clumsy in its form, though it climbs and moves about on trees with much more agility than one would expect when seeing it upon the ground. It is herbivorous, living on fruits, grain, and bark of the roots and branches of trees. It dwells in dens, or under rocks, and in the hollows of trees. When assailed, it immediately throws its head between the fore legs, and erects the spines on its back, and at the same time elevates its posterior parts and tail ; if it is now touched, it gives a smart lateral blow with its tail ; if this happens to come in contact with any object, it is left with numerous detached quills adhering to it, which, if not removed, will gradually work into the flesh. It therefore becomes a formidable weapon of defence, and serves to keep dogs, foxes, and wolves at bay. If it is irritated with a stick, it utters a plaintive cry, and immediately throws itself into a posture of defence, with a quick motion, and holds itself in readiness to inflict a blow on the disturbing object. The flesh is red, exhales an unpleasant, sweetish odor, and is rarely relished by individuals, except those in a savage state. It travels two or three miles from home, but returns ordinarily to its den. Those about Williamstown seem to reside under rocks, or to live in families, or at least they are known to maintain a residence at one place for a long time, which becomes the abode of one or more individuals successively for years. They are supposed to bring forth two at a time. Like other wild animals, they travel in what are termed by hunters *run-ways*, and form thereby well beaten paths. This animal is more nearly allied to the Beaver than to the Squirrels. The general form of the skull, the arrangement of the teeth, and the food on which it lives, &c., make a very close approximation to it, though the spines and coarseness of the hair and fur present features very unlike it. Its range north extends beyond Churchill's River. It is also found far west and south ; hence it is widely distributed. Though it is common on the mountains in the vicinity of Williamstown, I have never seen it in Middlefield or Chester, or even heard of it in any of the neighbouring towns. An albino is sometimes met with in the north part of the State of New York.

In the young, long, white, coarse hairs appear to take the place of quills along the back and sides.

ORDER RUMINANTIA.

Characters of the order. Animals embraced in this order are distinguished from others by the want of incisive teeth in the upper jaw. Between the molar teeth and the place usually occupied by the incisive teeth, there is a vacant space, as in the Rodentia ; in a few of the genera, however, there are canine teeth. There are generally six molars on each side of both jaws. The incisors of the lower jaw are almost universally eight in number. The feet are all two-toed, and the toes are covered with hoofs ; in some genera there are rudimental toes covered also with small hoofs.

The most singular faculty possessed by this order is that of rumination, or the power of returning the food to the mouth, to subject it to a second mastication after it has once been swallowed.

To the animals of this order, Dr. Godman remarks, that man is more largely indebted, than to all the rest of animated nature. The mass of his food is obtained from their flesh, and there is no part of their bodies from which he does not derive additions to his comforts, and assistance to his arts. Their hides, horns, bones, hair, flesh, fat, milk, and even their blood, are in hourly demand. Many of them, during their lives, yield him valuable services, as beasts of draught and burden, and contribute largely to his sustenance and luxury when they are finally slaughtered. Peaceful and patient in their dispositions, they feed exclusively on the verdure which is scattered over the earth, and prepare this vegetable matter most efficiently for the use of man and other creatures, by converting it into their own flesh, which is edible throughout all the members of this order, and, in a large proportion, is delicious food.

FAMILY XII. CERVIDÆ. The Deer Family.

Genus Cervus. Lin. Deer.

Generic characters. Dental system ; incisors $\frac{0}{8}$; canines $\frac{0}{0}=\frac{0}{0}$; molars $\frac{6}{6}=\frac{6}{6}$; $= 32$; head elongated, and terminated with a muzzle ; males all provided with horns, covered at first by a hairy membrane ; horns solid, branched, deciduous ; feet provided with hoofs ; tail short.

1. Cervus Alces. Lin. The Moose.

Cervus Alces, *Harlan*, Fauna Am., p. 229. *Richardson*, Fauna Bor. Am., p. 232.
The Moose, *Godman*, Nat. Hist., ii. p. 274.
Figure; Ibid., p. 274. Griffith's *Cuvier*, iv. p. 72.

Specific characters. Color black, or blackish-brown, intermixed with gray; neck surmounted with a short mane; head large, elongated, and terminating in a large, thick, curved nose, with a small triangular muzzle, and adorned in the male with large palmated horns; nostrils long, slouched, and narrow; neck short, and furnished with a hairy appendage beneath.

Description. The head is long, with a thick upper lip; the neck extremely short, and the body rather thick, and supported on long and rather slender legs; ears long; horns palmated and situated between the eyes and the crest of the skull; female destitute of horns; the color in the winter is almost black on the superior parts; lighter below, and yellowish, or dirty white, on the belly; legs long, and toes capable of being widely separated; tail very short; in the skull the horn is inserted nearer to the orbit of the eye than to the crucial ridge; between the insertion of the horns and the orbits, there exists a deep and wide depression, and above, a heavy ridge or projection, on which the horns are supported, and which is on the line of the coronal suture, or the suture may be said to traverse this projection on the posterior part; inward and beneath the orbit, there is a large, triangular, vacant space, which does not communicate directly with the orbit, but extends far up beneath the os frontis.

Dimensions.

	ft.	in.	t'ths.
Length of the body,	6	10	0
Tail,	0	1	5
Head,	1	6	0
Neck,	1	6	0
Ears,	0	10	0
Height,	5	4	0

Skull.

	ft.	in.	t'ths.
Length measured over the os frontis,	2	2	0
" " over the palatine bones to the foramen,	1	9	0
" from the occipital crest to a prominence between the horns,	0	4	5
" from the prominence to the bottom of the depression,	0	2	0
Depth of the depression,	0	1	5
Length from the prominence to the lower end of the nasal bones,	0	9	0
" from the lower end of the nasal to the end of the maxillary,	0	10	5
" from the centre of the horn to the centre of the orbit,	0	3	5
" from the tip of one horn to the other,	2	8	0
" of the horn,	2	4	0
Breadth of the jaw over the palatine bones,	0	5	0
Length over the processes of ossa malarum,	0	7	8
Height of the upper jaw,	0	7	2½
Width over the centre of the orbits,	0	7	0
Length of the lower jaw,	1	6	5

Number of prongs to the horn measured, 8

Observations. The Moose is not found at present within the limits of this State, neither has it probably been taken within its bounds for the last thirty or forty years. It may, therefore, be considered as extinct, so far as Massachusetts is concerned. It is still found in Maine, and in the northern parts of New York, Vermont, and New Hampshire.

The Moose, which, in the Indian language, means *wood-eater*, comes to maturity in about five years. The female brings forth two calves in the spring, which, in the course of the season, present a growth of horn in the form and size of a small knob ; in the second year, it is a round spike, and slightly curved at the extremity, and it is not until the third year that it begins to branch and flatten, and to present the appearance of being palmate. In the summer, the Moose frequents swamps and marshy grounds in the vicinity of lakes and ponds. In those places it finds a supply of its peculiar food, which consists of coarse grass, and twigs of young trees, especially the striped maple ; it is also in the habit of peeling old trees, and feeding on the bark. We have but to inspect this animal to be satisfied that its habits must be different from those of our common domesticated animals, for it will be observed at a glance, that it stands so high upon its legs, and its neck is so short, that it cannot conveniently feed in ordinary

pastures ; hence we see that it is peculiarly fitted to feed on the high coarse grasses of marshes, or on the leaves of the water lily, or on the twigs and bark of trees ; and it is thus we find that its habits correspond to its organization.

In the winter these animals herd together to the number of eight or ten individuals, which, unless when disturbed by hunters, occupy a common space or enclosure, during the whole period in which the ground is covered with snow. Those spaces are selected in which a supply of food is found, which must then consist entirely of twigs and the branches of trees, together with their bark. The snow is trodden down hard, and the space gradually extended as the food diminishes within ; they do not, therefore, roam about at this season, as in summer, but confine themselves to the vicinity of the places originally selected for their abode during the winter. The movements of the Moose are rapid, when pursued, and they make their way with the greatest ease through thickets, over fallen trees, and through brush almost impenetrable to man. Their gait is a long trot, in which the hoofs are spread wide apart, which makes them tender-footed, and unequal to the task of long continued flight ; hence they are overtaken by dogs and held at bay, even in that part of the season most favorable to their escape.

This animal has been domesticated, and broken to the harness, although naturally of a shy and timid disposition. Its sense of seeing is comparatively obtuse, but those of smell and hearing are extremely acute, both being greatly favored by the size of their respective organs. Thus the ears are large and quite movable, and well calculated to collect sounds, and transmit them to the auditory apparatus ; the nose, together with the spongoid bones within the cavity, is very large, and thereby permits of a great extension of the schneiderian membrane, to which the olfactory nerves are distributed ; hence it is impossible to approach them when the wind is blowing towards them, as a strange odor wafted to them in the air excites at once their attention, and puts them into the attitude of examination. When, on the contrary, the wind blows in the other direction, they may be approached directly without exciting suspicion. In some respects, it is desirable that so fine an animal should be saved from entire extirpation, though

it is quite doubtful whether it could be made profitable to man in the present state of society. If it could be suffered to exist in those parts of the country which are so sterile and cold that they cannot be cultivated with much profit, it is all that could be expected or wished for. Its meat is certainly delicious, partaking more of the nature of beef than of venison, and its flavor, in the males, would probably be improved by emasculation, which would render it also more susceptible of accumulating fat. For its preservation, however, it is difficult to enforce laws; so that there is very little probability of saving the species from a total extirpation. So far as game and hunting are concerned, the sooner our wild animals are extinct the better, for they serve to support a few individuals just on the borders of a savage state, whose labors in the family of man are more injurious than beneficial. It is not, therefore, so much to be regretted that our larger animals of the chase have disappeared. What comforts their fur and their skins have provided, can be abundantly supplied by animals already domesticated, at far less expense, both of time and money, and are not subject to that drawback, the deterioration of morals.

The young in October are fine-flavored, and, as we should expect, their meat partakes of the qualities of veal. An individual at this time gave the following measurements;

	ft.	in.	t'ths.
Length from the nose to the insertion of the tail,	5	8	0
Ear, measured behind,	0	7	6
Height,	3	10	0

The color, at this period, is a dark, rusty brown, quite uniform on the upper parts, and lighter on the legs. They continue in company with the mother, if undisturbed, the two first years. In the autumn, it is not uncommon to meet with from three to five individuals of different ages. The young, when only a few days old, is perfectly manageable, and will as readily follow its captor as its mother, provided she has been killed; it becomes, therefore, at this age, perfectly domesticated at once, and drinks milk, or feeds from the hand, with very little instruction. It soon learns to distinguish the inmates of the family, by whom it may be handled with perfect safety, but it is quite suspicious of strangers, and is very apt to give a severe blow with its knees, or fore feet.

2. Cervus tarandus. Lin. The Reindeer.

Caribou, *Charlevoix*, Nouv. France, iii., p. 129.
Greenland Deer, *Catesby.*
Reindeer, *Pennant*, Arct. Zool.
Cervus tarandus, *Harlan*, Fauna Am., p. 232.
The Reindeer, *Godman*, Nat. Hist., ii. p. 283.
Figure; Ibid., ii. p. 274, f. 2.

Specific characters. Dental system; incisors $\frac{0}{8}$; canines $\frac{1}{0}=\frac{1}{0}$; molars $\frac{6}{6}=\frac{6}{6}$; = 34; horns flat, smooth, and possessed by both sexes; hoofs rounded, broad, and consisting of a single plate folded immediately upon itself, so as to form the anterior and posterior surfaces, without the intervention of any substance between them.

Description. The general form of the animal is thick and heavy, more so at least than in the common deer, and its legs are proportionally shorter; horns palmate, rather smooth, or free from those rugosities common to the horns of the fallow deer; more or less irregular in their mode of branching; brow antler basal, and standing inwards towards its fellow; muzzle small, triangular; hoofs rounded before, hollowed out behind, thin, and consisting of a plate of horny matter, which is folded in such a manner, that the posterior portion is in contact with the anterior; none of that peculiar substance called "the frog of the foot," intervenes between the two portions; color above, brown; beneath, paler; chin, lower portion of the neck, and about the hoofs and tail beneath, whitish, or yellowish-white; a few hairs entirely white are sparsely scattered over the body; the hair very uniform as it regards length, tapering, brown at the extremity and whitish below, and slightly crisped; the winter coat very thick, and intermixed with brown fur; there is a palish patch back of the fore legs, and a triangular patch of brown between the fore legs, but all anterior, yellowish-white; there is also a dark-brown patch adjacent to the terminal white chin.

Dimensions.

	ft.	in.	t'ths.
Length from the nose to the root of the tail,	5	6	0
" of tail including the hair,	0	5	0
" from the nose to the base of the ear,	1	2	0

	ft.	in.	t'ths.
Length of the posterior portion of the ear,	0	5	0
" of the long hair under the neck,	0	5	0
" of the common hair,	0	1	3
Height at the fore legs,	3	0	0

Description and measurements from a male, said to be three years old, and in his winter dress.

Skull.

	ft.	in.	t'ths.
Length measured over the nasal bones,	1	2	0
" along the palatine bones,	1	0	5
Width between the orbits,	0	4	8
Length from the canine tooth to the meatus,	0	10	1
" from the upper edge of the orbit of the left side to the centre of the base of the horn,	0	2	7
The same measurement on the right side gives only	0	2	0

This difference in the position of the horns of opposite sides may be accidental.

Observations. Whether the Caribou was ever an inhabitant of this State, is now difficult to determine. Civilization we know early drove away the more shy and timid animals, especially those of the larger kinds, and hence, as in the case of the Moose, this too may have fled on the first approach of civilized man. It is only a few years since this animal occasionally appeared in the northern parts of Vermont and New Hampshire, from which it is not unreasonable to infer, that, in still earlier times, it may have passed still farther South, and, in fact, have occupied a portion of Massachusetts. It is never seen in this State at the present day. It is still possible that some light may be thrown upon this subject at some future day, by the discovery of the bones of the animal in the bogs, or alluvials along our water courses. This is the only resource which we have left for information on this subject. It will, I think, be perceived, that the Genus Cervus, as now constituted, requires some change, in order to adapt it to the present state of our knowledge of the principles of classification, and I think that it will not be long before naturalists will see the propriety of separating the Caribou* from the Genus Cervus.

* Since the above was written, I am informed by Dr. De Kay, that the Caribou has already been made into a new genus, but I am unable to refer to the author, and therefore am obliged to let the species remain in its old place in the system.

The differences are well marked and constant. For example, the male and female are both supplied with antlers; the presence also of the canine tooth is another very important difference; and again the structure of the hoof, and, lastly, the general shape and form of the body, though the most important differences are those relating to the teeth, and to the form and structure of the hoof. From an opportunity which I had of examining the skull of the Californian Moose, I was led to infer that it resembled more the Caribou of Nova Scotia, than the Moose, inasmuch as its size was less than the Moose, and it possessed the canine tooth. The form of this tooth is, however, very different, and would constitute, were there no other differences, a good specific character. There are many important differences in the skull of the Moose and Caribou, which it may be well to notice. In the Caribou, the nasal bones are longer, and these, together with the maxillæ, form a nearly cylindrical portion of the face below the eyes, whereas, in the Moose, this portion is compressed and flattened. The depression between the eyes is less in the Caribou than in the Moose. In the Caribou, the horns are placed farther from the eyes, while in the Moose, they stand over, and rest nearly on the superior and posterior portion of the orbit, and the cuneiform process is much wider, and the nasal septum extends backwards, and rests on its anterior portion in the former animal. The whole length of the skull in the Caribou, is proportionally longer, reckoning from the crest to the inferior termination of the nasal bones; while, in the Moose, the prolongation of the nose is greater than in the Caribou, there being a great extent of cartilage, while, in addition to length, it forms a high arch, as in the horse. The prominence in the os frontis of the Moose, is situated a little higher than the horns, but, in the Caribou, lower, making the depression, spoken of above, nearly between the eyes, while, in the Moose, it is above. Again, in the Caribou, the base on which the antlers are implanted, projects upward and backward, but in the Moose, laterally.

3. Cervus Virginianus. Fallow Deer.

Virginian Deer, *Pennant.*
Cervus Virginianus, *Harlan*, Fauna Am., p. 238.
The Common Deer, *Godman*, Nat. Hist., ii. p. 306.
Figure; Ibid., p. 306.

Specific characters. Horns bent forwards, with an antler on the internal face of each; stem directed inwards, and two or three others at the posterior face directed backwards; fur of a cinnamon fawn-color in summer, brownish-gray in winter; in the young, spotted with white, irregularly arranged on the sides, but in one continuous line along the back.

Description. General form slender and light; legs thin, rather long; color cinnamon-brown or fawn early in the summer, afterwards bluish; in the winter, yellowish or rusty-brown; hairs angular, tapering to a fine point, which is dark-brown, then a ring of yellow, then of brown, gradually fading into white or whitish, the last of which occupies nearly its whole length. The edge of the under lip is white, also the belly; a stripe on the anterior part of the hind leg, and the posterior part of the fore leg, and also the under part of the tail. Besides this distribution of colors, there is a gray, a little above the extremity of the nose, around the eyes, and inside of the ears; the latter are edged with dark brown. The general color is darker along the back than upon the sides; hoofs black, sharp, or pointed; on the inside of the hind legs there is a thick odoriferous brush of hair, situated near the joint, which seems to be connected with the sexual appetite.

Dimensions.

	ft.	in.	t'ths.
Medium length from the nose to the root of the tail,	5	0	0
Tail, including the hair,	0	10	0
Ear, on the back side,	0	6	0
From the nose to the space between the ears,	1	0	0
Height,	3	2	5

Observations. The Cervus Virginianus is still preserved in the eastern part of the State, on one or more islands near the main shore. It has also been taken within the last year in Williamstown, at the base of Saddle Mountain, and it is not very rare in

the towns upon the Hoosic Mountain range, and there is but little doubt, that in the more wooded parts of the State it would become an inhabitant again if unmolested by dogs and hunters.

Fossil Species.

A subject of great interest to the naturalist is the extinction of species. It will be perceived, on consulting the preceding pages, that a few animals which were once common to this State, are now driven from its bounds, and that when civilization shall have extended a little farther into the wilds of the forest, they, together with many more, will become extinct. In the course of my investigations or inquiries, I have ascertained that another animal of the deer tribe must have been also common to New England and New York, but that it has now totally disappeared. This animal was either the Canada Elk, or else was a distinct species from any now known to America. I am not able to satisfy myself whether the animal in question was the Canada Elk, in consequence of not having a skull for comparison; but I am rather inclined to think that it was a larger animal, and analogous to the Irish Elk. In this conjecture, it is quite possible I may be mistaken. Without, however, wasting time in conjecture, I proceed to state the facts in my possession relating to it.

The most important relics of this animal which have fallen under my observation, are a tooth, and a horn of the second year's growth. The tooth was taken from a clay bed along with several others in Chautauque County, New York. It is the last molar of the right side of the upper jaw; to it were attached a portion of the palatine bone, and the whole of the alveolar process. It is in a state of good preservation, and is not changed in its substance. It is an old tooth, being worn considerably. The following are its dimensions.

	in.	t'ths.
Greatest spread of the fangs,	1	7½
Transverse diameter of the crown,	1	5
Shortest diameter of the crown,	1	2

I understood from the person who furnished me with the tooth, that it was the smallest of several taken from the same place. The horn, spoken of above, belongs to the Museum of the Col-

lege of Natural History, in the University of Vermont. It was thrown out by the plough from an elevated piece of ground on Grand Isle, and near a spring of water. It was found in a vertical position. One side is corroded in spots. It is the second year's growth probably, as it has no branches, nor portions which exhibit appearances of having been branched. The following are its dimensions.

	in.	t'ths.
From the tip to the root in a straight line, . .	28	5
" " along the curve, ...	33	5
Circumference just above the tuberosities, . .	7	2½
" at the highest part of the curve, .	4	5
" five inches from the tip, . .	3	2½

By comparing this and the horn of the Moose of the second year, it is apparent that they are totally unlike. This, however, may be the horn of the young Elk, and the tooth in question may also belong to the same species ; if so, the facts go to prove the former existence of this animal much farther to the east than it is now found. Or they may belong to an extinct species, and it is only by a record of similar facts, that the question can be settled. It is for the purpose of calling the attention of the public to this subject, that the preceding facts are given, in hopes that thereby all bones, teeth, and horns, discovered, may be preserved for examination by those who are qualified for the task.

ERRATUM.

Page 5, for *Family* MUSCIDÆ, read *Family* MURIDÆ.

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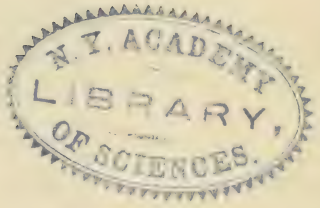

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